KUWAIT UNIVERSITY

College of Engineering & Petroleum

Office of Academic Assessment

Annual Report

2018-2019 Academic Year

July 2019

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Introduction

The Office of Academic Assessment (OAA) mission is to serve the academic programs, faculty, staff, and administration within the College of Engineering and Petroleum at Kuwait University. It is designed to foster continuous assessment for achieving academic excellence. The goals of the office are:

- To help coordinate program assessment processes
- To develop and implement regularly-scheduled and special-purpose student, alumni, and employer surveys
- To assist academic, administrative, and student-support units with data from assessments, and to develop or evaluate their own assessment processes
- To facilitate assessment training and awareness programs

Accordingly, the purpose of this report is to cover the activities of OAA in the academic year 2018/19. The main activities are summarized. Recommendations and plans for the next academic year are given.

Workshops Conducted by OAA

The office conducted a workshop entitled "ABET Accreditation Visit – Preparation Workshop/Retreat" for the College of Engineering and Petroleum Dean, Vice-Deans, Department Chairs, UPC Coordinators, and Assessment Coordinators. A brief description of this workshop including objectives, outlines is given in Appendix A. The Workshop was held at Radisson Blu Hotel on Saturday, February 9, 2019.

Online Course Assessment

The office has provided the course assessment form to the faculty through an online system. Faculty members could leave the system at any time before submitting the form without losing any of the data they entered; they also were able to view the previously submitted forms. After submitting the form, an instruction page appeared. It contains guidelines on how to prepare the course assessment file to be submitted to the departmental assessment coordinator.

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to seven student outcomes (1-7). Accordingly, a mapping framework was developed to properly implement these changes during the transition period.

The assessments were conducted for the Fall, Spring, and Summer semesters of 2017/18. A comprehensive report including all the details and the results has been prepared and issued. A summary is given in Appendix B.

Starting Fall Semester of the 2018/19 academic year, the online assessment form, and the ICEF report were modified to reflect the revised SO's changes. The results were accordingly prepared and issued. A summary is also given in Appendix B.

Exit Survey

Students upon graduation are required to submit the exit survey form in order participate in the design exhibition. The survey was filled online by students graduating at the end of the Fall, Spring and Summer semesters of the academic year 2017/18, and Fall Semester 2018/19. A comprehensive report including all the details and the results has been prepared and issued. The statistics are calculated according to the new student outcomes (1-7); acquired at Kuwait University–Engineering programs. A mapping framework was developed to properly implement the changes. A summary is given in Appendix C.

Coordination of Departmental Assessment Activities

The director of OAA along with the Vice Dean for Academic Affairs organized a series of briefings for the faculty councils of all Departments regarding academic assessment. In these meetings the status of academic assessment in the respective departments was reviewed. The concerns and questions of the faculty members were addressed, and their feedback on the process was sought. A sample presentation is given in Appendix D.

The Course Assessment Response Statistics for the Fall Semester of the academic year 2018/19 are given below. They were prepared during February and March 2019. For the Fall Semester 2018/19, Tables 1a and 1b show the total number of faculty members who taught courses, the total courses taught, and the number of responses according to faculty and courses, for each department. Table 1a shows early response statistics that was undertaken in the month of February, while Table 1b shows the response statistics by March 2019. A total response of 91 was recorded out of 196 faculty members who were teaching courses during the semester (46.4% response rate). The responses covered 169 different courses. Our target response rate for all departments is 80%.

Table 1a: Course Assessment Response Statistics –Fall Semester 2018/19 (Feb 12, 2019)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	18	44	10	6	22.7	33.3
CIVIL	53	89	19	15	21.3	28.3
COMPUTER *	19	40	28	19	70.0	100.0
ELECTRICAL	37	90	17	7	18.9	18.9
IMSE	14	34	8	4	23.5	28.6
MECHANICAL	40	84	28	14	33.3	35.0
PETROLEUM	15	32	7	3	21.9	20.0
TOTAL	196	413	117	68	28.3	34.7

Table 1b: Course Assessment Response Statistics –Fall Semester 2018/19 (March 3, 2019)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	18	44	23	12	52.3	66.7
CIVIL	53	89	35	26	39.3	49.1
COMPUTER *	19	40	37	19	92.5	100.0
ELECTRICAL	37	90	19	8	21.1	21.6
IMSE	14	34	12	5	35.3	35.7
MECHANICAL	40	84	28	14	33.3	35.0
PETROLEUM	15	32	15	7	46.9	46.7
TOTAL	196	413	169	91	40.9	46.4

For the Spring Semester 2018/19, the process of submission is still ongoing.

The OAA has also been coordinating the following activities:

Program Assessment Plans Revision

Program assessment plans have been revised to reflect ABET Criterion 3 changes, from 11 to 7 Student Outcomes (SO). Implementation of the new SO was the Fall Semester of 2018/19. A mapping between the revised (7) and current (11) SO with some thoughts and suggestions provided to all programs are presented below:

			New Student Outcomes (2019-2020 cycle)						
			1	2	3	4	5	6	7
Previous Student Outcomes	1	*a*	✓						
	2	*b*						✓	
	3	*c*		✓					
	4	*d*					✓		
	5	*e*	✓						
	6	*f*				✓			
	7	*g*			✓				
	8	*h*				✓			
	9	*i*							✓
	10	*j*				✓			
	11	*k*	✓	✓				✓	

Previous version of Student Outcomes

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. an ability to function on multidisciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a recognition of the need for, and an ability to engage in life-long learning
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Revised version of Student Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Summary thoughts and suggestions:

Based on the discussion during the joint CAC and UPC meeting the mapping of the current to the revised version of the SO is given in the table above. Please observe the following:

- Except for revised SO (1) and (4), the rest are one-to-one mapping to the current version.

- SO (j) and (k) of the current version are now part of revised Criterion 5: Curriculum. If needed, some of the elements of these outcomes may be included in the revised version of the SO.

All program assessment plans, with a certain degree of diversity, consist of the following elements:

1. Relationship of SO to Program Educational Objectives (PEO): The relevant table can be revised immediately.
2. Curriculum (courses) contribution to student outcomes: The relevant table can also be revised immediately. It can serve as a starting point to revise the course outcomes and the contribution of the course to SO (if it was overdone).
3. Outcome indicators (performance criteria).
4. Course measurable outcomes (outcome attributes).
5. Implementation practices (strategy).
6. Assessment methods and tools.

Most of the elements of the assessment plans mentioned above can be revised relatively easy. A slight difficulty may arise from SO (1) and (4). As can be seen from the table, both are the result of merging two different current outcomes. Also, in the assessment process development for all 7 revised SO, we must pay close attention to the new language that is being used.

Initial groundwork can be done by the Assessment and UPC coordinators. Early in the Spring Semester of 2017/18 however, all faculty including the chairman, must be involved in the revision process. Either as TAGs or task groups. This will facilitate first-hand knowledge and ownership of the assessment process in the department.

Self-Study Report (SSR) Preparation

The OAA in cooperation with the VDAA have been coordinating the preparation of the SSR of all programs for the ABET EAC accreditation visit which will take place November 2-4, 2019. The SSR have been completed and uploaded onto the ABET website on June 30, 2019. Below is the SSR preparation tracking sheet as of June 9, 2019. The tracking sheet was developed to follow-up with the key dated during the SSR preparation process.

2019 ABET Self-Study Report Preparation Tracking Sheet

Action Items:	Due Date:	Comments:
1st Draft of Self-Study	**15-Mar-18**	Includes Background, PC, Criteria 1, 2, 3, 8, and partially Criteria 4, 5, 6, 7
2nd Draft of Self-Study	**8-May-18**	Complete to as maximum degree as possible
Review of Drafts	**20-May-18**	VDA, OAA review self-study drafts for content and structure
3rd Draft of Self-Study	**22-Nov-18**	Complete report
Mock Evaluation Visit 1	**6-Dec-18**	Review self-study drafts/ visit assessment rooms and labs
Final Draft of Self-Study	**28-Mar-19**	Report ready to submit/needs review
Mock Evaluation Visit 2	**14-April-19**	Review self-study drafts/ visit assessment rooms and labs
Final Version of Self-Study	**14-23 May 2019**	Soft Copy to VDAA and OAA/ready to submit to ABET

	Received and Complete
	Received but not complete (in progress)
	Received (Needs Review by VDAA & OAA)
	Not Received

Department	UPC Coordinator	Self Study Part 1 (Criteria)								
		Background	C1	C2	C3	C4	C5	C6	C7	C8
			Students	Objectives	Outcome s	Cont. Asses	Curriculum	Faculty	Facilities	Institutional Support
Chemical	**Dr. Bader**									
Civil	**Prof. Kabir**									
Computer	**Prof. Anwar**									
Electrical	**Prof. Cherri**									
Industrial	**Dr. Jawad**									
Mechanical	**Prof. Ahmet**									
Petroleum	**Prof. Ioannis**									

Department	UPC Coordinator	PC	Self Study Part 2 (Appendices)			
			A	B	C	D
			Course Syllabi	CV	Equipment	Ins. Sum.
Chemical	**Dr. Bader**					
Civil	**Prof. Kabir**					
Computer	**Prof. Anwar**					
Electrical	**Prof. Cherri**					
Industrial	**Dr. Jawad**					
Mechanical	**Prof. Ahmet**					
Petroleum	**Prof. Ioannis**					

Assessment and Accredition SharePoint

The Assessment and Accreditation group was created on Office 365 by OAA to collect/share assessment and accreditation items/activities among the various departments of the College of Engineering and Petroleum.

There are common documents that are shared by all departmets in addition to department-specific document repository which contains the following folders.

- Course Assessment Files
- Sample Design Reports
- Student Transcripts
- Outcome Assessment Files
- Self Study Report
- Assessment Plan

OAA Operation Plan (Fall 2015 – Spring 2020)

At the beginning of the 2015/16 academic year, the OAA operation plan for the following five academic years was formulated as shown in the following:

Academic Year 2015/16 - Fall 2015

- Prepare OAA annual report for 2014/15.
- Prepare 2014/15 student exit survey report.
- Prepare 2014/15 on-line course assessment report.
- Coordinate revision of program assessment plans.
- Coordinate assessment activities among engineering programs.
- Conduct Seminar visits to Departments.
- Conduct Faculty Workshops.
- Ensure that observations/concerns/deficiencies based on the final statement of ABET (Fall 2013 evaluation visit) have been addressed.
- Establish a timeline for activities leading to the next ABET visit.
- Administer end of Semester Student Exit Survey.

Academic Year 2015/16 - Spring 2016

- Coordinate revision of program assessment plans.
- Coordinate assessment activities among engineering programs.
- Conduct Seminar visits to Departments.
- Conduct Faculty Workshops.
- Revisit Assessment Toolbox.
- Establish College/Programs Industry Advisory Boards.
- Request placement data from ETAC.
- Administer end of Semester Student Exit Survey.

Academic Year 2016/17 - Fall 2016

- Prepare OAA annual report for 2015/16.
- Prepare 2015/16 student exit survey report.
- Prepare 2015/16 on-line course assessment report.
- Launch Alumni Survey.
- Analyze placement data obtained.
- Coordinate assessment activities among engineering programs.
- Formulate and propose corrective actions that are based on assessment results.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2016/17 - Spring 2017

- Prepare Alumni Survey Report.
- Organize an alumni gathering.
- Launch Employer Survey.
- Coordinate assessment activities among engineering programs.
- Conduct internal review.
- Formulate/Implement corrective actions if any.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2017/18 - Fall 2017

- Prepare OAA annual report for 2016/17
- Prepare 2016/17 student exit survey report.
- Prepare 2016/17 on-line course assessment report.
- Prepare Employer Survey Report.
- Organize an employer gathering.
- Coordinate assessment activities among engineering programs.
- Formulate and propose corrective actions that are based on assessment results.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2017/18 - Spring 2018

- Coordinate assessment activities among engineering programs.
- Launch Faculty Survey.
- Formulate/Implement corrective actions if any.
- Evaluation College/Programs Educational Objectives based on assessment data.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2018/19 - Fall 2018

- Prepare OAA annual report for 2017/18
- Prepare 2017/18 student exit survey report.
- Prepare 2017/18 on-line course assessment report.
- Coordinate assessment activities among engineering programs.
- Prepare Faculty survey report.
- Send request for evaluation to ABET.
- Request placement data from ETAC.
- Conduct internal review.
- Start preparing Self-Study reports.
- Administer end of Semester Student Exit Survey.

Academic Year 2018/19 - Spring 2019

- Coordinate assessment activities among engineering programs.
- Evaluation College Educational Objectives based on assessment data.
- Coordinate organizing student works and assessment evidences at the departments.
- Conduct internal review.
- Finalize Self-Study reports.
- Send Self-Study reports.
- Administer end of Semester Student Exit Survey.

Academic Year 2019/20 - Fall 2019

- Prepare OAA annual report for 2018/19
- Prepare 2018/19 student exit survey report.
- Prepare 2018/19 on-line course assessment report.
- Coordinate assessment activities among engineering programs.
- Prepare for ABET evaluation visit.
- Host ABET evaluation visit: Sunday – Tuesday (November 2019)
- Administer end of Semester Student Exit Survey.

Academic Year 2019/20 - Spring 2020

- Study ABET evaluation final statement.
- Respond to ABET observations/concerns/deficiencies.
- Coordinate assessment activities among engineering programs.
- Launch Alumni Survey.
- Launch Employer Survey.
- Administer end of Semester Student Exit Survey.

Evaluation of the OAA Operation Plan (Fall/Spring 2018 – 2019)

The accomplishments and evaluation of the OAA operation plan, which was presented in the previous section, are given below for the academic year 2018 – 2019:

Academic Year 2018/19 - Fall 2018

- Prepare OAA annual report for 2017/18
  - Sent on June 2018
  - Report sent in Arabic on June 2018
- Prepare 2017/18 student exit survey report.
  - Prepared and sent on October 2018 according to the new 7 student outcomes.
  - A comparative study is carried out on Exit, ICEF, and Employer evaluations of student outcomes on the Academic year 16/17
- Prepare 2017/18 on-line course assessment report.
  - Report sent on 28/11/2018 **the new 7 student outcomes**.
- Coordinate assessment activities among engineering programs.
  - Requested departmental assessment reports
  - Requested Computer assessment plan on 4th October 2017 & received it on 15th October
  - Departmental visits – Preparatory meeting for the upcoming Internal Review- MOCK Visit for all the departments was held from 25th Nov - 28th Nov 2018.
  - Mapping of student outcome is applied to all reports starting this Semester.
  - A mapping framework is developed to properly implement the SOs changes during the transition period (15 to11) and (11 to 7)
- Administer end of Semester Student Exit Survey.
- Requested a new server to hold the Assessment files and databases from KUCIS
  - It has been obtained and completed, and the new system is been migrated
- Migrating and re-creating our ICEF reporting system to match with the new 7 outcomes
- Request the assessment coordinators to add/update their virtual assessment rooms.
  - It is in process
- Assisting assessment coordinators with the virtual assessment rooms.
  - As and when the coordinators need assistance

ABET VISIT

- Prepare to conduct internal review.
  - Visits scheduled from 3rd Dec to 12th Dec
- Preparing Self-Study reports.
  - 2nd Drafts submitted by all 7 departments.
- Initiate the process to apply for ABET accreditation visit
  - Dean will send a letter to the President to get the approval for requesting ABET accreditation visit
  - The President will get the approval of the Kuwait Accreditation Agency (NBAQ)
  - Approved and sent to Dec 5th 2018

- Finalize assessment plans and online ICEF.
- Make sure the SSR is being completed.
    - SSR Draft submitted
- Internal review and MOCK visit
    - Send SSR for review to select people
    - Send the documents required for the upcoming Mock Visit 1
    - Mock visit scheduled from 3rd Dec to 12th Dec
    - Feedback back to departments given
    - Follow-up with MOCK visit
        1. Assessment room
        2. Department facilities (classroom, labs, etc.)
- SSR are revised (need checklist).
- Informal meetings with the UPC from 3rd Feb till 5th Feb 2019.
- Workshop for ABET Preparation scheduled for the 9th Feb 2019 at the Radisson Blu.

Academic Year 2018/19 - Spring 2019

- Coordinate assessment activities among engineering programs.
    - ICEF report sent on March 6th 2019.
    - EXIT report sent on March 3rd 2019.
- Evaluation College Educational Objectives based on assessment data.
- Coordinate organizing student works and assessment evidences at the departments.
    - Had informal meeting with the UPC & Assessment from 10th March till 14th March 2019.
- Conduct internal review.
    - MOCK Visit 2 scheduled for 15th, 17th and 22nd April 2019.
    - Informal meetings regarding the SSR and upcoming MOCK visit 2 from 7th April till 11th April.
- Finalize Self-Study reports.
    - Final draft submission on 28/3/2019 – All departments submitted.
- Send Self-Study reports
- Administer end of Semester Student Exit Survey.
- College Website Updates
    - Updated the exit, alumni and employer survey
    - Updated Enrollment and Graduation Data
    - Updating PE courses
    - Updated the vision and mission for KU
    - Changed the PEO's for all departments
    - Obtained full access for the website
    - Uploaded latest set of presentations
- SharePoint updates
    - Updated SSR Common Documents Folder files
- New Server
    - Looking into the migration of the remaining surveys
    - Regular updates for the ICEF report

- Changing of passwords for faculty members.
- Granting access to new faculty members.

ABET site visit schedule and preparations

The upcoming ABET's EAC visit to Faculty of Engineering and Petroleum is confirmed to be on November 2-4, 2019 (Saturday to Monday). The purpose of this visit is to evaluate the seven programs (chemical engineering, civil engineering, computer engineering, electrical engineering, industrial and management systems engineering, mechanical engineering, and petroleum engineering.) The following presents the OAA preparation for ABET's site visit.

ABET site visit preparations for Academic Year 2018-19

September – October 2018

- By end of October we need to request for official transcripts (1) for every Program.
- Follow up with the ABET maintenance payment in October
- Request for Evaluation (RFE) – letter to the President regarding the matter
- Request for Approval (RFA) for ABET to be obtained from NABQ

October 2018 - January 2019:

- First "final" SSR are due Nov 22, 2018. Internal review will follow
- Late December/early January fill up the online Request for Evaluation (RFE) along with RFA. Official transcripts from every program should be mailed to ABET – deadline Jan 31, 2019

March - April 2019:

- Second "final" SSR are due March, 28. Mock evaluation visit will follow. April 14.
- SSR are finalized based on observations/recommendations

May 2019:

- Contact team chair to ask his/her requirements.
- Finalize a draft visit schedule for the team chair.
- Follow-up travel arrangements with team chair (all the team members will make their own arrangements-the cost will be covered in the total cost for the evaluation visit).

June - July 2019:

- SSR will be uploaded to ABET website.
- Request transcripts of all graduates for all the engineering programs in the last two semesters prior to the visit and check for possible errors in graduation dates. Prepare an alphabetical list of all graduates whose transcripts are obtained.

ABET site visit preparations, and schedule for Academic Year 2019-20

September 2019:

- Request flight schedules for each of the ABET team members once they are finalized.
- Prepare detailed visit schedule for all team members in coordination with the departments.
- Ask Service Department to provide transportation, and the hotel reservations for ABET team for the whole duration of the visit. Mention in the letter that the college will pay any expense not covered by

the University so that the team members are not charged. Also, ask for arranging the use of VIP lounge for arrivals.
- Prepare publications containing information about Kuwait, (requested from Ministry of Information, KUNA, and Ministry of Planning, etc.) to be given to ABET team members upon arrival.
- Reserve a meeting room for the team members (Preferred the Dean's conference room) for the whole visit duration.
- Arrange cell phones for team members.

October 2019:

- Send letters to all departments for nominating one faculty member to be the department's representative before ABET evaluator.
- Send letters to all departments requesting the nomination of one faculty member to escort ABET team members to supporting departments.
- Arrange meetings between nominated faculty members and supporting department representatives (KUCS, ELU, Library, College of Science, College of Arts, College of Social Science, etc.) to discuss the preparation requirements for meeting with ABET members.
- Finalize hotel reservation arrangements upon determination of the departure and arrival dates.
- Prepare textbooks for all the common courses for ABET team. These textbooks can be borrowed from the Book Store.
- Ask departments to finalize the tentative schedule with their evaluator.
- Finalize preparations to deliver lunch for the team members in the chosen meeting room.
- Request eight computers and a printer to be available for the team members so that they can type and print their reports.

Sunday-Tuesday 20-22 October 2019:

- Check with Services Department for the details of meeting the team members at the airport. Make sure the names of the people who will meet the team are sent to the authorities for permission.

Sunday-Tuesday 23-25 October 2019:

- Prepare a package containing: updated tables of SSR, tentative schedule of each member prepared by the corresponding engineering department to be delivered upon arrival.
- Prepare bags containing info about Kuwait to be delivered at the college the first day.
- Prepare an A4 paper with “ABET TEAM” written on it to be used to meet the team at the gate.

Thursday-Friday 31 October -1 November 2019 - Days of arrival of ABET team:

- Make sure a faculty member meets the team.
- Make sure to be at the airport 30 minutes prior to the scheduled arrival time (Do not count on the updates provided by the airport information).

Saturday-Monday 2-4 November 2019 – Evaluation visit:

- **Day 0: Saturday**:
  1. The ABET Team will come to the college (1-4 pm) to:
  - Visit departments
  - Check laboratories
  - Check display materials
  - Other items on the schedule to be determined (possible visit to the new campus could be arranged)

- **Day 1: Sunday**:
  - Morning – Team will meet, Dean, associate deans, program chairs, and assessment /research officers. Dean presents what is common to the programs that is used to meet the Engineering Criteria [1.5 hrs].
  - Morning – Team Chair will meet the President, VPs and Secretary General [1.5 hrs].
  - Morning – Program Evaluator meets Program Chair [1 hr].
  - Morning – Program Evaluator meets with team responsible for the assessment and accreditation process [1.5 hrs]
  - 12:00-1:00 pm – Team has lunch with extended number of representatives from each department at the cafeteria (needs to be reserved)
  - Afternoon – Team chair and Program Evaluators meet support area/department representatives [1 hr].
  - Afternoon – Program Evaluator meets with group of students [1hr].
  - Afternoon – Program Evaluator meets with additional teams responsible for the process [2 hrs].
  - Afternoon – Team Chair and Dean meet to discuss issues of concern identified during day 1 [0.5 hr].
- **Day 2: Monday:**
  - Morning - Team Meeting to Prepare Final Statement
  - **11:00-12:00 PM** Team Chair briefs Dean, and Evaluators brief department chairs
  - **12:00-2:00 pm** – Team prepares exit statement during lunch
  - **2:00 pm or 2:30 pm** – Exit meeting with the President, Dean and the Chairs. The President's conference room must be reserved.
  - Other items on the schedule to be determined

- Confirm the meetings of each day one day before each meeting.
- Confirm the flight departures for all members with the proper airline.
- Coordinate with the drivers for the transportation of the team to and from the College daily.

First week after the visit:

- Send a thank you letter to all the members who participated in preparation for the visit.

Recommendations

- After the updating and migrating the ICEF survey's evaluation and reporting tools to KU website, we need to start similar procedures for the rest of the OAA's surveys (configuring the host, creating backup of website files, and upload website files to new host's server).
- Update the new college website, and make sure there are no inconsistencies with the SSR.
- Update and revise the college bulletin without errors and inconsistencies with college/program webpages and programs SSR.
- Programs have finalized writing their SSR based on internal evaluations/corrections and have been submitted to ABET. Now, we need to proceed with the rest of preparations for the next ABET evaluation visit 2-4 November 2019, e.g., transcripts analysis, assessment room preparations, lab and facilities, etc. Each program should have the UPC or a representative available for communication with the ABET team throughout the Summer.
- Course assessment is a continuous process and should be encouraged so we could achieve >70% participation by the faculty.

APPENDIX A: Faculty Training Seminar & Workshop

ABET ACCREDITATION VISIT – PREPARATION WORKSHOP/RETREAT

Place: Radisson Blu Hotel
Date: Saturday, February 9, 2019
Time: 8:30 am – 1:30 pm

Attendees:

Dean, Vice-Deans, Department Chairs, UPC Coordinators, Assessment Coordinators

Objective:

To share the College collective experience from the preparations for the upcoming ABET accreditation visit.

Program

S:NO	ITEMS	TIME
1	Welcoming comments by the Dean	8:30-8:40 am
2	Presentation of VDAA regarding the scope of the workshop, accreditation and assessment structure and responsibilities	8:40-9:00 am
3	Presentation of the OAA director on the status of preparation, SSR, mock visits, timeline of activities	9:00-9:20 am
4	Programs share their ABET accreditation visit preparations; readiness status, needs, issues, problems, improvements, etc	9:20-10:20 am
COFFEE BREAK 10:20 – 10:30 am		
5	Continuing item 4	10:20-10:30 am
PRAYER BREAK 12:00 - 12:30 pm		
6	Closing discussion/recommendations	12:30-1:30 pm
LUNCH 1:30 pm		

APPENDIX B

Online Course Assessment

For Academic year 2017-2018

November 2018

Introduction

This report presents the results of the online course assessment at the College of Engineering and Petroleum conducted by instructors during Fall, Spring, and Summer Semesters for the academic year 2017-2018. The online assessment form was developed, conducted, and analyzed by the Office of Academic Assessment (OAA).

Preparation and Implementation of the Process

The form was provided to the faculty through an online system. Faculty members were able to leave the system at any time before submitting the form without losing any of the data they entered. They were also able to view the previously submitted forms. After submitting the form, an instruction page appears. It contains guidelines on how to prepare a course assessment file to be submitted to the departmental assessment coordinator.

For the Fall Semester (Table 1), a total response of 218 was recorded from faculty members in the college (61.1% response rate). The responses covered 396 different courses (55.1 % response rate).

For the Spring Semester (Table 2), a total response of 195 was recorded from faculty members in the college (53.2% response rate). The responses covered 415 different courses (47.0 % response rate).

For the Summer Semester (Table 3), a total response of 41 was recorded from faculty members in the college (24.2% response rate). The responses covered 165 different courses (24.8 % response rate).

Results and Discussion

Tables 4, 8, and 12 show the average rating of student performances in all courses in the college during Fall, Spring, and Summer Semesters (according to the 11 outcomes a-k), respectively.

The average rating of student performances in all courses in the college are again calculated according to the new 7 student outcomes (2019-2020 cycle ABET updates) during Fall, Spring and Summer Semesters, respectively. Results are shown in Tables 5, 9, and 13. These results are presented graphically in Figures 1, 3, and 5, respectively. As it can be seen the students have achieved the desired outcomes.

Tables 6, 10, and 14 show the comparison of the weighted average scores of student performance between individual departmental courses, engineering core courses, and college-wide courses (according to the 11 outcomes a-k), during Fall, Spring and Summer Semesters, respectively.

Tables 7, 11, and 15 show the comparison of the weighted average scores of student performance between individual departmental courses, engineering core courses, and college-wide courses, according to the new 7 student outcomes (2019-2020 cycle ABET updates) during Fall, Spring, and Summer Semesters, respectively. These results are presented graphically in Figures 2, 4, and 6, respectively. As it can be seen with some exceptions of 0% and 100% ratings, most of program averages are between 60%-80% and close to the college average. The reasons for the too small and too high averages are: the lack of data in those outcomes and programs and/or the small number of data available for those outcomes and programs.

The relevance ratings given for each course are used as weights. Since the response rate is somewhat low (summer semester), and therefore, some courses are not represented in a balanced way, the results may not be valid for some programs.

In the survey instrument, the first eleven outcomes are those corresponding to ABET Criterion 3 (a-k) outcomes, and the rest of the outcomes are program specific. Therefore, the analysis and departmental comparison have used to be performed on the first eleven student outcomes.

Transition to the New Student Outcomes (1-7)

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to only seven student outcomes (1-7). A mapping framework is developed to properly implement these changes during the transition period.

The average rating of student performances are calculated according to the new 7 student outcomes (2019-2020 cycle ABET updates) by using the mapping framework shown below, along with the calculation of averages for the new outcomes based on the previous outcomes.

Previous student outcomes 11 (a-k) SOs are as follows,

1. An ability to apply knowledge of mathematics, science, and engineering
2. An ability to design and conduct experiments, as well as to analyze and interpret data
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. An ability to function on multidisciplinary teams
5. An ability to identify, formulate, and solve engineering problems
6. An understanding of professional and ethical responsibility
7. An ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. A recognition of the need for, and an ability to engage in life-long learning
10. A knowledge of contemporary issues
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The new 7 (1-7) SOs (according to 2019-2020 cycle ABET updates) are as follows:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The mapping framework of student outcomes SOs, which is used in calculating the weighted averages of students' performance is given below:

			New Student Outcomes (2019-2020 cycle)						
			1	2	3	4	5	6	7
Previous Student Outcomes	1	*a*	✓						
	2	*b*						✓	
	3	*c*		✓					
	4	*d*					✓		
	5	*e*	✓						
	6	*f*				✓			
	7	*g*			✓				
	8	*h*				✓			
	9	*i*							✓
	10	*j*				✓			
	11	*k*	✓	✓				✓	

Therefore, weighted averages for student performance will be calculated during the transition period as follows

$$WA_1 = (WA_a + WA_e)/2$$
$$WA_2 = WA_c$$
$$WA_3 = WA_g$$
$$WA_4 = (WA_f + WA_h)/2$$
$$WA_5 = WA_d$$
$$WA_6 = WA_b$$
$$WA_7 = WA_i$$

Calculation of the weighted averages (WAs) of Students performances for the new outcomes based on the previous outcomes

As noted above, the student outcomes *j*, and *k* are not included in the calculation, as they are not explicitly stated in the new updates.

More detailed results are presented below in the departmental tables, where both relevance ratings and student performance are given for all outcomes. The departments are encouraged to review the results and mapping tables carefully and to make necessary adjustments.

Table 1: Response statistics – Fall Semester

DEPARTMENT	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	19	30	27	13	90.0	68.4
CIVIL	48	91	39	26	42.9	54.2
COMPUTER	30	59	39	25	66.1	83.3
ELECTRICAL	36	88	30	15	34.1	41.7
IMSE	14	30	29	14	96.7	100.0
MECHANICAL	36	67	30	17	44.8	47.2
PETROLEUM	15	31	24	11	77.4	73.3
TOTAL	198	396	218	121	55.1	61.1

Table 2: Response statistics – Spring Semester

DEPARTMENT	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	18	48	24	10	50.0	55.6
CIVIL	50	91	28	19	30.8	38.0
COMPUTER	32	52	36	25	69.2	78.1
ELECTRICAL	36	80	25	11	31.3	30.6
IMSE	16	31	24	13	77.4	81.3
MECHANICAL	36	76	33	18	43.4	50.0
PETROLEUM	15	37	25	12	67.6	80.0
TOTAL	203	415	195	108	47.0	53.2

Table 3: Response statistics – Summer Semester

DEPARTMENT	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	16	16	4	4	25.0	25.0
CIVIL	36	36	4	4	11.1	11.1
COMPUTER	23	23	2	2	8.7	8.7
ELECTRICAL	35	35	8	7	22.9	20.0
IMSE	10	10	2	2	20.0	20.0
MECHANICAL	32	32	12	11	37.5	34.4
PETROLEUM	13	13	9	10	69.2	76.9
TOTAL	165	165	41	40	24.8	24.2

Table 4: Students performance – College (Fall 2017-2018) (According to the 11 outcomes a-k)

O	Outcome	5	4	3	2	1	0	Average	Weighted
a	Apply mathematics, science, and engineering	29	83	58	10	3	57	3.7	3.7
		12%	35%	24%	4%	1%	24%	74%	74%
b	Design and conduct experiments and analyze and interpret data	12	47	27	2	0	152	3.8	3.9
		5%	20%	11%	1%	0%	63%	76%	78%
c	Design a system, a component or a process	16	54	53	6	2	109	3.6	3.7
		7%	23%	22%	3%	1%	45%	72%	74%
d	Function as an effective team member	26	42	32	3	5	132	3.8	4
		11%	18%	13%	1%	2%	55%	76%	80%
e	Identify, formulate, and solve engineering problems	37	82	58	14	2	47	3.7	3.8
		15%	34%	24%	6%	1%	20%	74%	76%
f	Understand professional & ethical responsibilities	13	36	36	3	1	151	3.6	3.8
		5%	15%	15%	1%	0%	63%	72%	76%
g	Communicate effectively	18	62	45	8	1	106	3.7	3.8
		8%	26%	19%	3%	0%	44%	74%	76%
h	Understand the impact of engineering solutions	18	50	48	6	1	117	3.6	3.8
		8%	21%	20%	3%	0%	49%	72%	76%
i	Recognize the need for life-long learning	10	40	42	6	0	142	3.6	3.6
		4%	17%	18%	3%	0%	59%	72%	72%
j	Know the contemporary issues	9	40	30	4	1	156	3.6	3.7
		4%	17%	13%	2%	0%	65%	72%	74%
k	Use the techniques, skills and modern engineering tools for engineering practice	36	84	65	8	2	45	3.7	3.8
		15%	35%	27%	3%	1%	19%	74%	76%

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Table 5: Students performance – College (Fall 2017-2018) (According to the 2019-2020 cycle ABET updates)

O	Student Outcomes	Weighted Average
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 75%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.7 74%
3	an ability to communicate effectively with a range of audiences	3.8 76%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 76%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4 80%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.9 78%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.6 72%

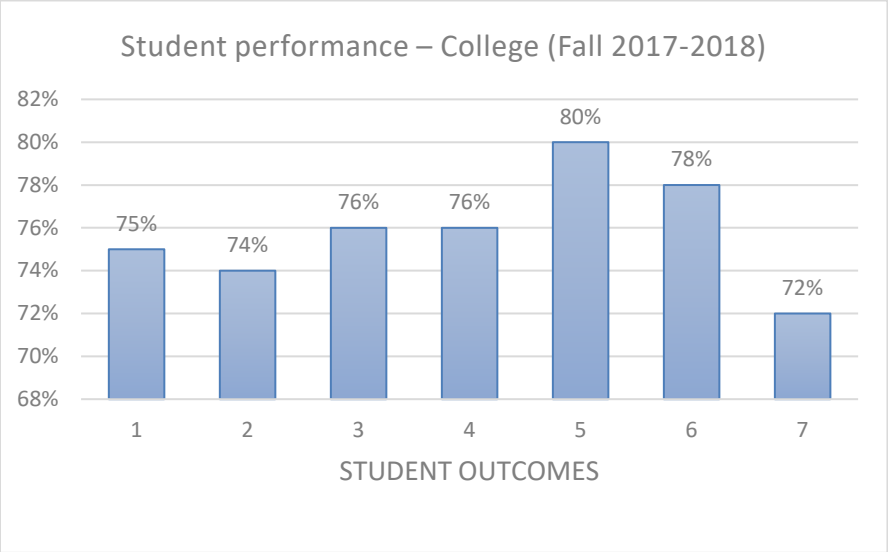

Figure 1: Student performance – College (Fall 2017-2018) (According to the 2019-2020 cycle ABET updates)

Table 6: Students performance (weighted averages) –comparison between programs, engineering core, and college (Fall 2017-2018) (According to the 11 outcomes a-k)

O	Outcome	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
a	Apply mathematics, science, and engineering	72%	84%	90%	64%	76%	58%	82%	70%	74%
b	Design and conduct experiments and analyze and interpret data	100%	74%	86%	76%	72%	74%	82%	60%	78%
c	Design a system, a component or a process	78%	78%	90%	64%	72%	60%	80%	66%	74%
d	Function as an effective team member	72%	78%	100%	68%	90%	68%	88%	60%	80%
e	Identify, formulate, and solve engineering problems	68%	86%	82%	62%	82%	60%	84%	70%	76%
f	Understand professional & ethical responsibilities	76%	76%	100%	60%	70%	58%	84%	74%	76%
g	Communicate effectively	74%	76%	80%	74%	86%	68%	80%	46%	76%
h	Understand the impact of engineering solutions	74%	78%	90%	54%	76%	62%	82%	70%	76%
i	Recognize the need for life-long learning	72%	80%	96%	60%	76%	56%	72%	72%	72%
j	Know the contemporary issues	78%	76%	80%	70%	76%	66%	80%	72%	74%
k	Use the techniques, skills and modern engineering tools for engineering practice	76%	82%	80%	62%	78%	66%	82%	76%	76%

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Table 7: Students performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2017-2018) (According to the 2019-2020 cycle ABET updates)

O	Outcome	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	70%	85%	86%	63%	79%	59%	83%	70%	75%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	78%	78%	90%	64%	72%	60%	80%	66%	74%
3	an ability to communicate effectively with a range of audiences	74%	76%	80%	74%	86%	68%	80%	46%	76%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental,	75%	77%	95%	57%	73%	60%	83%	72%	76%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	72%	78%	100%	68%	90%	68%	88%	60%	80%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	100%	74%	86%	76%	72%	74%	82%	60%	78%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	72%	80%	96%	60%	76%	56%	72%	72%	72%

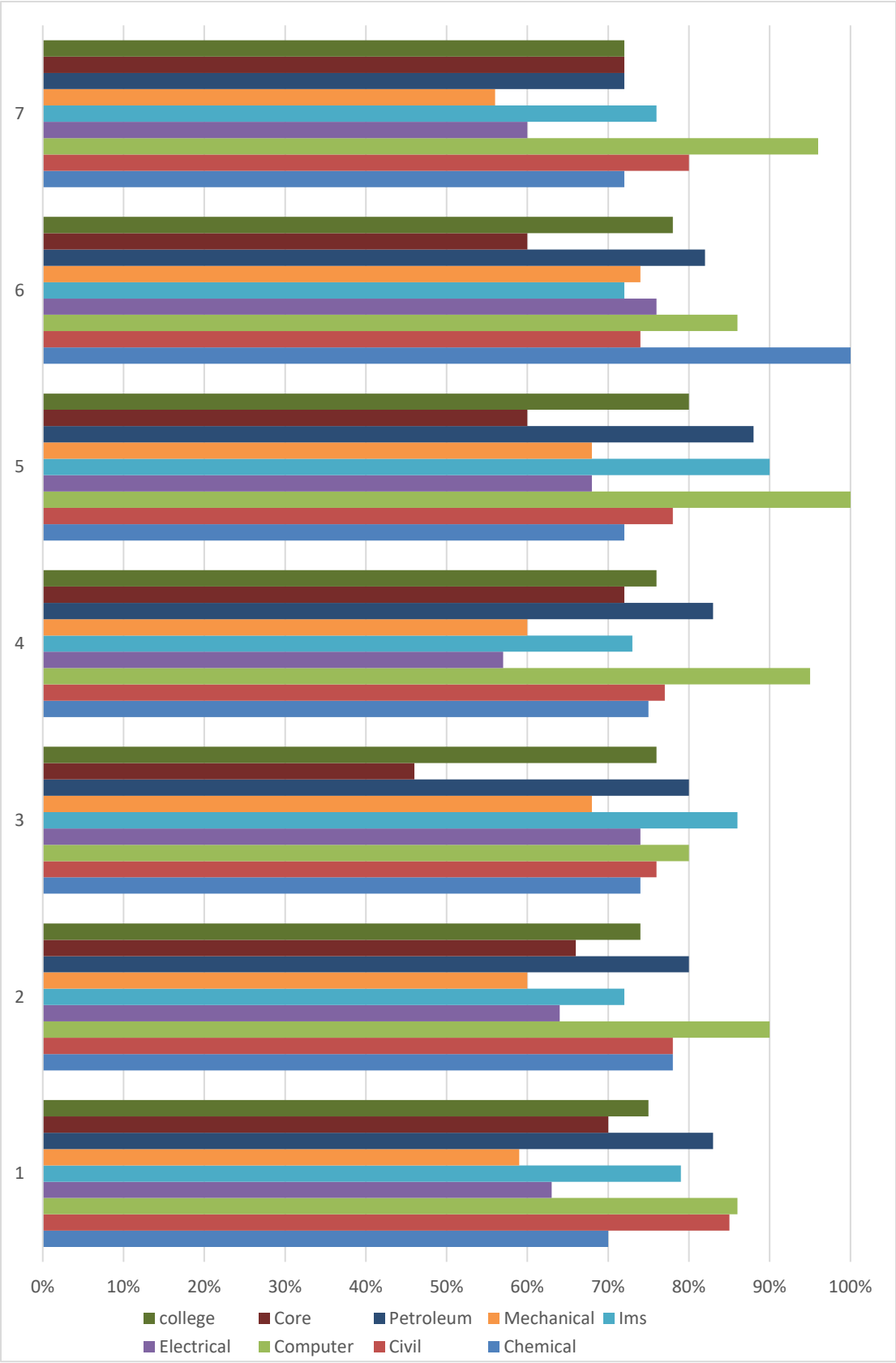

Figure 2: Students performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2017-2018) (According to the 2019-2020 cycle ABET updates)

Table 8: Students performance – College (Spring 2017-2018) (According to the 11 outcomes a-k)

O	Outcome	5	4	3	2	1	0	Average	Weighted Average
a	Apply mathematics, science, and engineering	32	62	58	11	3	65	3.7	3.6
		14%	27%	25%	5%	1%	28%	74%	72%
b	Design and conduct experiments and analyze and interpret data	14	41	34	5	2	135	3.6	3.7
		6%	18%	15%	2%	1%	58%	72%	74%
c	Design a system, a component or a process	22	35	49	7	0	118	3.6	3.7
		10%	15%	21%	3%	0%	51%	72%	74%
d	Function as an effective team member	21	42	29	1	1	137	3.9	4
		9%	18%	13%	0%	0%	59%	78%	80%
e	Identify, formulate, and solve engineering problems	42	61	61	14	3	50	3.7	3.7
		18%	26%	26%	6%	1%	22%	74%	74%
f	Understand professional & ethical responsibilities	13	31	35	5	0	147	3.6	3.8
		6%	13%	15%	2%	0%	64%	72%	76%
g	Communicate effectively	17	43	42	5	0	124	3.7	3.8
		7%	19%	18%	2%	0%	54%	74%	76%
h	Understand the impact of engineering solutions	17	50	43	3	0	118	3.7	3.8
		7%	22%	19%	1%	0%	51%	74%	76%
i	Recognize the need for life-long learning	15	26	45	5	0	140	3.6	3.7
		6%	11%	19%	2%	0%	61%	72%	74%
j	Know the contemporary issues	5	36	28	3	0	159	3.6	3.6
		2%	16%	12%	1%	0%	69%	72%	72%
k	Use the techniques, skills and modern engineering tools for engineering practice	46	66	57	8	5	49	3.8	3.8
		20%	29%	25%	3%	2%	21%	76%	76%

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Table 9: Students performance – College (Spring 2017-2018) (According to the 2019-2020 cycle ABET updates)

O	Outcome	Weighted Average
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.7 73%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.7 74%
3	an ability to communicate effectively with a range of audiences	3.8 76%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 76%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4 80%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.7 74%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.7 74%

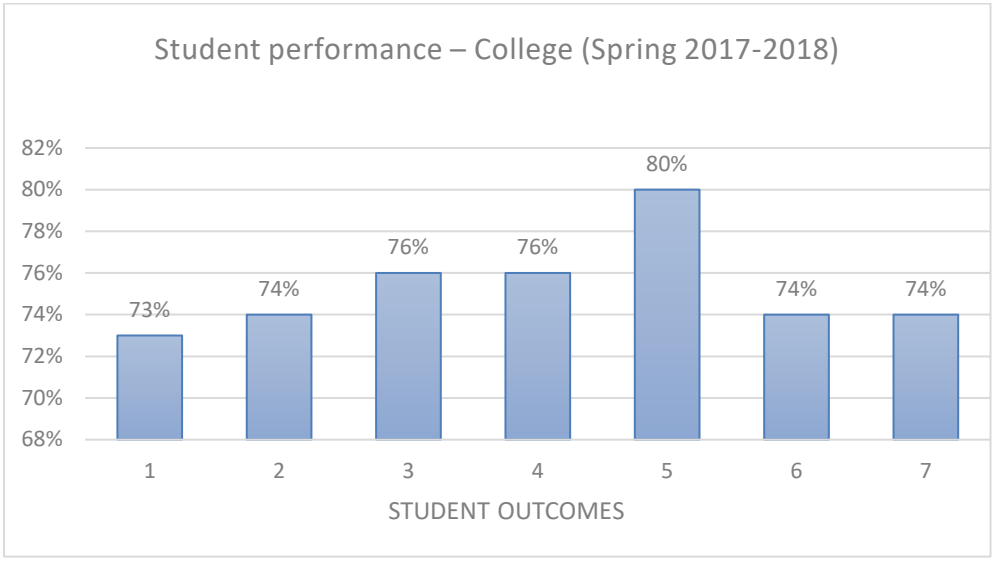

Figure 3: Student performance – College (Spring 2017-2018) (According to the 2019-2020 cycle ABET updates)

Table 10: Students performance (weighted averages) – comparison between programs, engineering core, and college (Spring 2017-2018) (According to the 11 outcomes a-k)

O	Outcome	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
a	Apply mathematics, science, and engineering	72%	78%	88%	66%	68%	64%	76%	78%	72%
b	Design and conduct experiments and analyze and interpret data	70%	70%	74%	74%	76%	76%	82%	80%	74%
c	Design a system, a component or a process	80%	78%	80%	72%	80%	60%	78%	80%	74%
d	Function as an effective team member	74%	76%	80%	70%	86%	76%	84%	100%	80%
e	Identify, formulate, and solve engineering problems	74%	82%	78%	66%	82%	62%	70%	74%	74%
f	Understand professional & ethical responsibilities	80%	80%	80%	60%	84%	60%	78%	66%	76%
g	Communicate effectively	72%	76%	60%	70%	84%	74%	76%	54%	76%
h	Understand the impact of engineering solutions	78%	78%	90%	72%	74%	66%	76%	66%	76%
i	Recognize the need for life-long learning	78%	78%	100%	60%	80%	66%	70%	70%	74%
j	Know the contemporary issues	74%	72%	0%	66%	80%	70%	70%	68%	72%
k	Use the techniques, skills and modern engineering tools for engineering practice	80%	84%	80%	64%	76%	64%	80%	82%	76%

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Table 11: Students performance (weighted averages) – comparison among programs, engineering core, and college (Spring 2017-2018) (According to the 2019-2020 cycle ABET updates)

O	Outcome	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	73%	80%	83%	66%	75%	63%	73%	76%	73%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	80%	78%	80%	72%	80%	60%	78%	80%	74%
3	an ability to communicate effectively with a range of audiences	72%	76%	60%	70%	84%	74%	76%	54%	76%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	79%	79%	85%	66%	79%	63%	77%	66%	76%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	74%	76%	80%	70%	86%	76%	84%	100%	80%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	70%	70%	74%	74%	76%	76%	82%	80%	74%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	78%	78%	100%	60%	80%	66%	70%	70%	74%

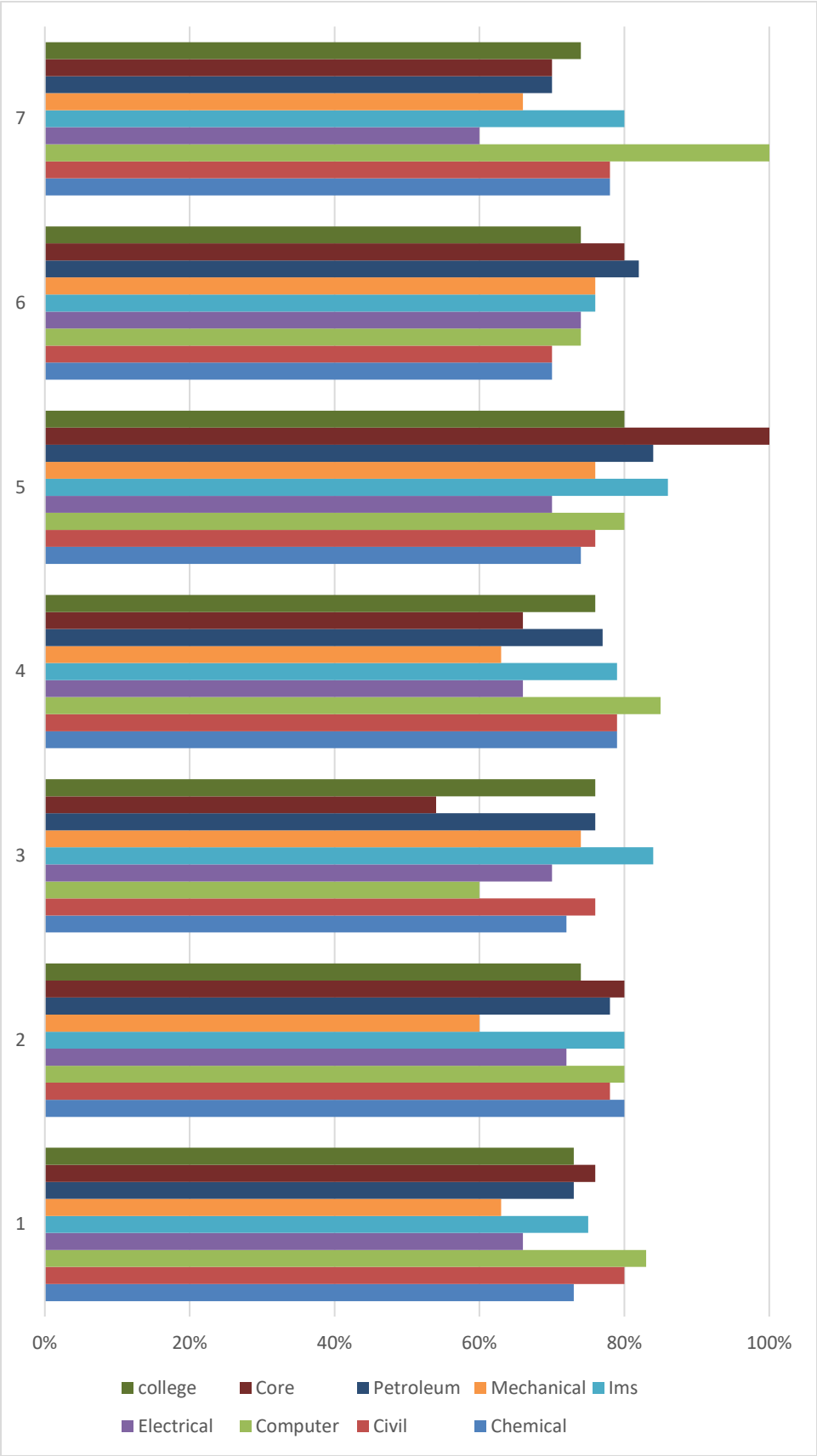

Figure 4: Students performance (weighted averages) – comparison between programs, engineering core, and college (Spring 2017-2018) (According to the 2019-2020 cycle ABET updates)

Table 12: Students performance – College (Summer 2017-2018) (According to the 11 outcomes a-k)

O	Outcome	5	4	3	2	1	0	Average	Weighted Average
a	Apply mathematics, science, and engineering	11	20	17	4	1	2	3.7	**3.7**
		20%	36%	31%	7%	2%	4%	74%	**74%**
b	Design and conduct experiments and analyze and interpret data	5	7	10	0	1	32	3.7	**3.7**
		9%	13%	18%	0%	2%	58%	74%	**74%**
c	Design a system, a component or a process	3	12	21	1	0	18	3.5	**3.5**
		5%	22%	38%	2%	0%	33%	70%	**70%**
d	Function as an effective team member	6	10	13	0	1	25	3.7	**3.7**
		11%	18%	24%	0%	2%	45%	74%	**74%**
e	Identify, formulate, and solve engineering problems	7	17	14	4	2	11	3.5	**3.4**
		13%	31%	25%	7%	4%	20%	70%	**68%**
f	Understand professional & ethical responsibilities	3	9	13	2	0	28	3.5	**3.5**
		5%	16%	24%	4%	0%	51%	70%	**70%**
g	Communicate effectively	2	15	16	1	0	21	3.5	**3.5**
		4%	27%	29%	2%	0%	38%	70%	**70%**
h	Understand the impact of engineering solutions	1	16	12	2	0	24	3.5	**3.6**
		2%	29%	22%	4%	0%	44%	70%	**72%**
i	Recognize the need for life-long learning	2	9	17	4	0	23	3.3	**3.4**
		4%	16%	31%	7%	0%	42%	66%	**68%**
j	Know the contemporary issues	2	10	9	1	0	33	3.6	**3.5**
		4%	18%	16%	2%	0%	60%	72%	**70%**
k	Use the techniques, skills and modern engineering tools for engineering practice	7	15	20	2	1	10	3.6	**3.6**
		13%	27%	36%	4%	2%	18%	72%	**72%**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Table 13: Students performance – College (Summer 2017-2018) (According to the 2019-2020 cycle ABET updates)

O	Outcome	Weighted Average
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.6 71%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.5 70%
3	an ability to communicate effectively with a range of audiences	3.5 70%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.6 71%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	3.7 74%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.7 74%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.4 68%

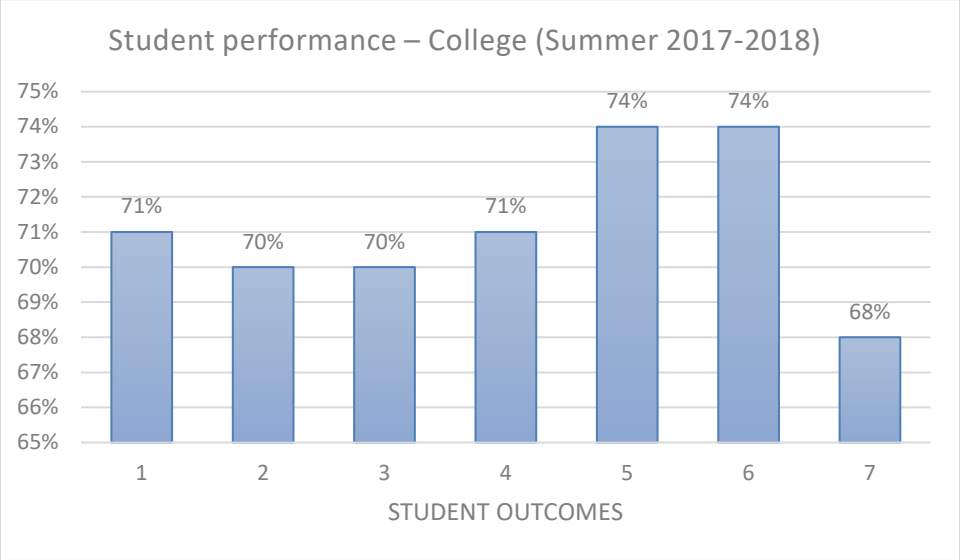

Figure 5: Student performance – College (Summer 2017-2018) (according to the 2019-2020 cycle ABET updates)

Table 14: Students performance (weighted averages) – comparison between programs, engineering core, and college (Summer 2017-2018) (According to the 11 outcomes a-k)

O	Outcome	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
a	Apply mathematics, science, and engineering	82%	80%	100%	66%	0%	68%	76%	72%	74%
b	Design and conduct experiments and analyze and interpret data	0%	64%	0%	60%	0%	76%	88%	0%	74%
c	Design a system, a component or a process	80%	66%	80%	68%	0%	68%	70%	60%	70%
d	Function as an effective team member	52%	70%	0%	60%	80%	68%	90%	0%	74%
e	Identify, formulate, and solve engineering problems	76%	62%	80%	76%	0%	60%	74%	64%	68%
f	Understand professional & ethical responsibilities	60%	74%	0%	0%	80%	64%	72%	60%	70%
g	Communicate effectively	68%	72%	0%	60%	80%	66%	76%	80%	70%
h	Understand the impact of engineering solutions	60%	66%	0%	80%	80%	60%	72%	76%	72%
i	Recognize the need for life-long learning	64%	80%	0%	0%	80%	56%	70%	70%	68%
j	Know the contemporary issues	54%	70%	0%	0%	80%	64%	66%	80%	70%
k	Use the techniques, skills and modern engineering tools for engineering practice	66%	76%	100%	62%	60%	72%	78%	80%	72%

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Table 15: Students performance (weighted averages) – comparison between programs, engineering core, and college (Summer 2017-2018) (According to the 2019-2020 cycle ABET updates)

O	Outcome	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	79%	71%	90%	71%	0%	64%	75%	68%	71%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	80%	66%	80%	68%	0%	68%	70%	60%	70%
3	an ability to communicate effectively with a range of audiences	68%	72%	0%	60%	80%	66%	76%	80%	70%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	60%	70%	0%	40%	80%	62%	72%	68%	71%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	52%	70%	0%	60%	80%	68%	90%	0%	74%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	0%	64%	0%	60%	0%	76%	88%	0%	74%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	64%	80%	0%	0%	80%	56%	70%	70%	68%

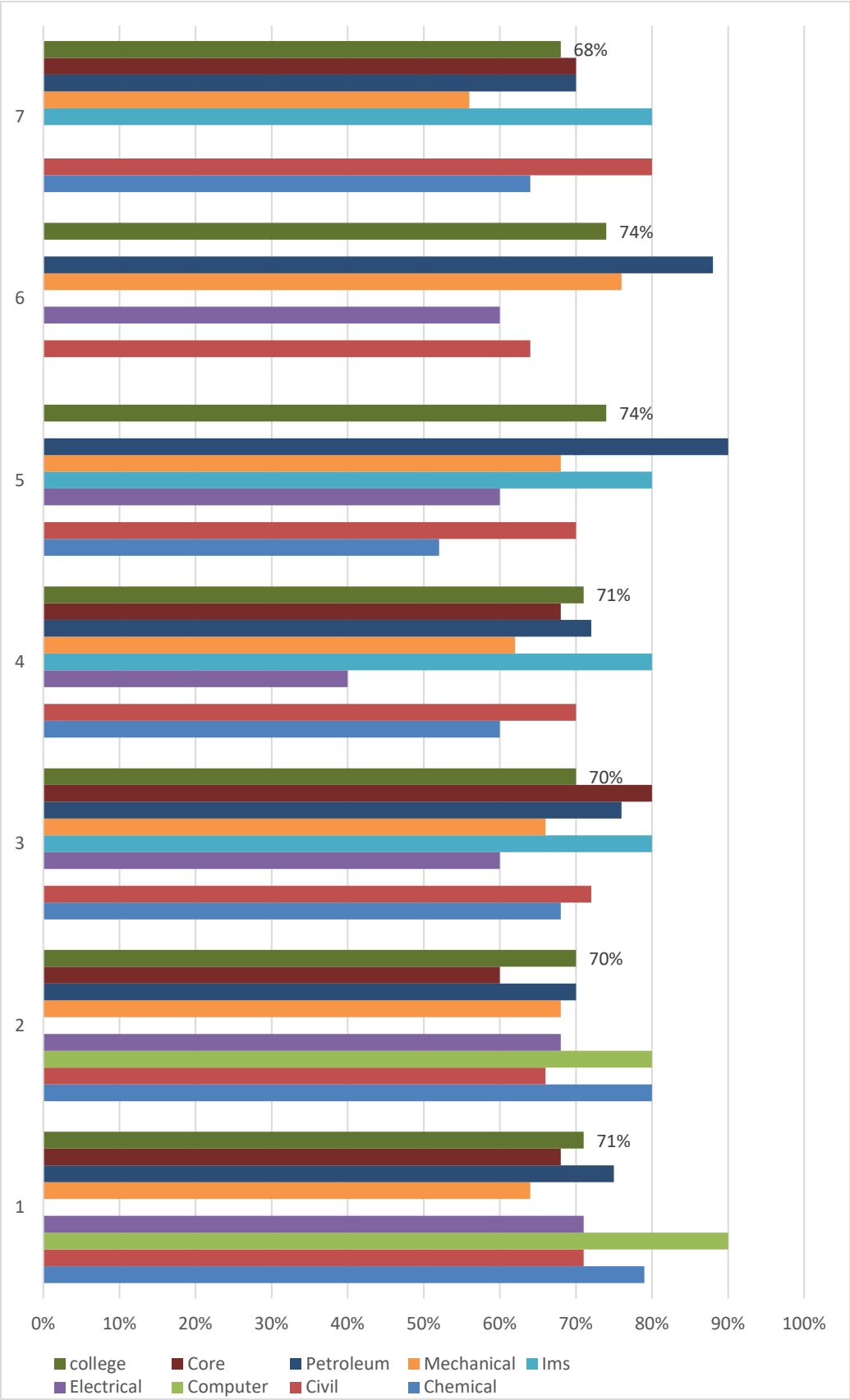

Figure 6: Students performance (weighted averages) – comparison between programs, engineering core, and college (Summer 2017-2018) (According to the 2019-2020 cycle ABET updates)

Departmental Results

Chemical Engineering Program

Fall semester

Instructors: **13**

Courses: **28**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0640-211	Chemical Engineering Principles I	H		L		H	L		M			L	M
0640-211	Chemical Engineering Principles I	H		L		H	L		M			L	M
0640-241	Fluid Mechanics	H		M	L	H	L	L	M	H		M	H
0640-241	Fluid Mechanics	H		M	L	H	L	L	M	H		M	H
0640-241	Fluid Mechanics	H		M	L	H	L	L	M	H		M	H
0640-321	Chemical Engineering Thermodynamics	H		L	L	H	L	L	L	M		H	M
0640-324	Kinetics and Reactor Design (A)	H		H	L	M	L	L	M	M	L	M	H
0640-345	Mass Transfer	H		M	L	H	L	L	M	H		M	H
0640-351	Process Dynamics and Control	H		M	L	M	L	M	L	M	L	M	H
0640-351	Process Dynamics and Control	H		M	L	M	L	M	L	M	L	M	H
0640-352	Process Dynamics and Control Laboratory	M	H	L	H	M	L	H	M	M	L	M	H
0640-391	Chemical Process Synthesis	H	H	H	H	H	H	H	H	H	H	H	H
0640-427	Kinetics and Reactor Design (B)	H		H	L	H	L	L	M	M		M	H
0640-427	Kinetics and Reactor Design (B)	H		H	L	H	L	L	M	M		M	H
0640-440	Mass Transfer Operations	H		H	M	H	L	M	M	M	L	M	H
0640-461	Water Desalination	M		H	L	M	L	M	M	L	M	M	M
0640-461	Water Desalination	M		H	L	M	L	M	M	L	M	M	M
0640-463	Wastewater Treatment												
0640-472	Petroleum Refining Engineering	M		H	M	M	L	M	M	L	M	H	H
0640-475	Gas Sweetening												
0640-491	Plant Design	M		H	H	H	H	H	H	M	M	H	H
0640-491	Plant Design	M		H	H	H	H	H	H	M	M	H	H
0640-491	Plant Design	M		H	H	H	H	H	H	M	M	H	H
0640-491	Plant Design	M		H	H	H	H	H	H	M	M	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0640-211	Chemical Engineering Principles I	2				2							3
0640-211	Chemical Engineering Principles I	1				1							2
0640-241	Fluid Mechanics												
0640-241	Fluid Mechanics												
0640-241	Fluid Mechanics	4		3	3	3	3	3	3	2		3	3
0640-321	Chemical Engineering Thermodynamics	2	3	3	3	2	2	3	3	3	3	4	3
0640-324	Kinetics and Reactor Design (A)	4		4	3	4	5	3	4	3	2	4	3
0640-345	Mass Transfer	4		4	1	3	2	3	2	4		3	4
0640-351	Process Dynamics and Control	3		3	3	4	5	4	4	4	3	5	4
0640-351	Process Dynamics and Control	4		4		4		3		4		3	4
0640-352	Process Dynamics and Control Laboratory	4	5	3	3	4	3	3	5	3	4	4	3
0640-391	Chemical Process Synthesis	5	5	5	5	5	5	5	5	5	5	5	5
0640-427	Kinetics and Reactor Design (B)			4	4		3	4	4	4	3	4	
0640-427	Kinetics and Reactor Design (B)	4		3		3	3	3	3	3		4	4
0640-440	Mass Transfer Operations	3		3	1	3	3	3	3	2	2	3	3
0640-461	Water Desalination	4		4				4	3				4
0640-461	Water Desalination	4		4				4	3				4
0640-463	Wastewater Treatment	4		3	3	4	4	3	4	4	3	4	3
0640-472	Petroleum Refining Engineering	4		4	4	4	4	4	4	3	4	4	4
0640-475	Gas Sweetening	4		5	5	5	4	5	5	4		4	5
0640-491	Plant Design	5		5	5	5	4	4	4	5	4	4	5
0640-491	Plant Design	5		5	5	5	4	4	4	5	4	4	5
0640-491	Plant Design	5		5	4	4	5	4	5	4	5	4	5
0640-491	Plant Design	3		3	3	3	3	3	3	3	3	3	3
	Weighted Average	**3.6**	**5**	**3.9**	**3.6**	**3.4**	**3.8**	**3.7**	**3.7**	**3.6**	**3.9**	**3.8**	**3.8**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-321	Chemical Engineering Thermodynamics	Only few students are reading the text book.
0640-351	Process Dynamics and Control	For students to perform better in advance and senior courses, they have to be trained on thinking "out of the box" in sophomore courses. Seems like the conventional "problem solving" that is based on punching numbers in the calculator to get final answers is what they are good at. There is no thorough understanding or smart selection of relevant and irrelevant numbers.
0640-352	Process Dynamics and Control Laboratory	No difference in performance from last semester
0640-427	Kinetics and Reactor Design (B)	Performance fluctuates during the term. Therefore, the students focus changed drastically especially near the term end. As a result, one or two topics were not totally grasped by some students. This problem might be solved through more proper advising to prevent students with low GPA from registering in more than 12 credits.
0640-472	Petroleum Refining Engineering	A couple of students did not do the HW problems at all and another couple we re absent many lectures which affected their grades.

Spring Semester

Instructors: **10**

Courses: **25**

RELEVANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0640-211	Chemical Engineering Principles I	H		L		H	L		M			L	M
0640-211	Chemical Engineering Principles I	H		L		H	L		M			L	M
0640-211	Chemical Engineering Principles I	H		L		H	L		M			L	M
0640-241	Fluid Mechanics	H		M	L	H	L	L	M	H		M	H
0640-242	Fluid Mechanics Laboratory	M	H	L	H	L	M	H		M		H	L
0640-291	Fundamentals of Chemical Engineering			H	H	H	M	H	M	L	L	H	H
0640-291	Fundamentals of Chemical Engineering			H	H	H	M	H	M	L	L	H	H
0640-304	Introduction to Environmental Engineering												
0640-304	Introduction to Environmental Engineering	M	L	L	L	M	L	M	H	L	H		
0640-321	Chemical Engineering Thermodynamics	H		L	L	H	L	L	L	M		H	M
0640-321	Chemical Engineering Thermodynamics	H		L	L	H	L	L	L	M		H	M
0640-324	Kinetics and Reactor Design (A)	H		H	L	M	L	L	M	M	L	M	H
0640-324	Kinetics and Reactor Design (A)	H		H	L	M	L	L	M	M	L	M	H
0640-351	Process Dynamics and Control	H		M	L	M	L	M	L	M	L	M	H
0640-391	Chemical Process Synthesis	H	H	H	H	H	H	H	H	H	H	H	H
0640-391	Chemical Process Synthesis	H	H	H	H	H	H	H	H	H	H	H	H
0640-427	Kinetics and Reactor Design (B)	H		H	L	H	L	L	M	M		M	H
0640-427	Kinetics and Reactor Design (B)	H		H	L	H	L	L	M	M		M	H
0640-440	Mass Transfer Operations	H		H	M	H	L	M	M	M	L	M	H
0640-443	Mass Transfer Operations Laboratory	L	H		H	L	H	H	L	L	L	H	L
0640-472	Petroleum Refining Engineering	M		H	M	M	L	M	M	L	M	H	H
0640-472	Petroleum Refining Engineering	M		H	M	M	L	M	M	L	M	H	H
0640-491	Plant Design	M		H	H	H	H	H	H	M	M	H	H
0640-491	Plant Design	M		H	H	H	H	H	H	M	M	H	H

PERFORMANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0640-211	Chemical Engineering Principles I	2		3		3	3		4			3	3
0640-211	Chemical Engineering Principles I	2				2							3
0640-211	Chemical Engineering Principles I	1				1							2
0640-241	Fluid Mechanics												
0640-242	Fluid Mechanics Laboratory	5	3	4		3				5			
0640-291	Fundamentals of Chemical	5		5	4	5	5	3	5	5	3	3	4
0640-291	Fundamentals of Chemical	5		5	4	5	4	4	4	5	3	5	5
0640-304	Introduction to Environmental												
0640-304	Introduction to Environmental	4	4	4	4	4	4	4	4	4	4		
0640-321	Chemical Engineering	4		4	3	4	3	3	3	3		3	4
0640-321	Chemical Engineering												
0640-324	Kinetics and Reactor Design (A)	4		4	3	4	3	3	4	3	2	4	3
0640-324	Kinetics and Reactor Design (A)	4		4	3	4	3	3	4	3	2	4	3
0640-351	Process Dynamics and Control												
0640-391	Chemical Process Synthesis	5	5	5	5	5	5	5	5	5	4	5	5
0640-391	Chemical Process Synthesis	5	3	5	5	5	5	5	5	5	5	5	5
0640-427	Kinetics and Reactor Design (B)	4		3		3	3	3	3	3		4	4
0640-427	Kinetics and Reactor Design (B)	4		3		3	3	3	3	3		4	3
0640-440	Mass Transfer Operations	3		3	1	3	3	3	3	3	2	3	3
0640-443	Mass Transfer Operations Laboratory	3	3	3	3	3	2	3	3	3	3	3	2
0640-472	Petroleum Refining Engineering	3		3		3	3	3	3	3	3	3	3
0640-472	Petroleum Refining Engineering	4		4	4	4	4	4	4	3	4	4	4
0640-491	Plant Design	4		4	3	4	5	3	4	4	4	5	4
0640-491	Plant Design	5		4	4	5	5	4	4	5	4	5	4
	Weighted Average	**3.6**	**3.5**	**4**	**3.7**	**3.7**	**4**	**3.6**	**3.9**	**3.9**	**3.7**	**4**	**3.7**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-472	Petroleum Refining Engineering	Students had problem with the science part of the course. They explained that they are having difficulty memorizing information. They did well with the engineering calculations part of the course.

Summer Semester

Instructors: **4**

Courses: **4**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0640-345	Mass Transfer	H		M	L	H	L	L	M	H		M	H
0640-440	Mass Transfer Operations	H		H	M	H	L	M	M	M	L	M	H
0640-472	Petroleum Refining Engineering	M		H	M	M	L	M	M	L	M	H	H
0640-475	Gas Sweetening												

PERFORMANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0640-345	Mass Transfer	4		4	1	3	2	3	2	4		3	4
0640-440	Mass Transfer Operations	5	3	5	3	5	4	4	4	2	2	4	5
0640-472	Petroleum Refining Engineering	3		3	3	3	3	3	3	3	3	3	3
0640-475	Gas Sweetening	4		5	5	5	5	4	5	4		4	5
	Weighted Average	**4.1**	**0**	**4**	**2.6**	**3.8**	**3**	**3.4**	**3**	**3.2**	**2.7**	**3.3**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-440	Mass Transfer Operations	The small number of students (7 students) was a positive factor that help give more and individualized attention to each student which helped in the learning process and for the students to perform very well in this course.

Civil Engineering Program

Fall semester

Instructors: **27**

Courses: **40**

RELEVANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0620-201	Introduction to Design	M		M	H	H	M	H	L	L	M	L	
0620-201	Introduction to Design	M		M	H	H	M	H	L	L	M	L	
0620-201	Introduction to Design	M		M	H	H	M	H	L	L	M	L	
0620-252	Engineering Materials	M	H	M				M	L		L		
0620-252	Engineering Materials	M	H	M				M	L		L		
0620-252	Engineering Materials	M	H	M				M	L		L		
0620-271	Structural Analysis I	H		M		H		L	M	L		M	L
0620-310	Fluid Mechanics	H		L		H							
0620-311	Water Resources	M	H	M	M	H		M	L			M	
0620-311	Water Resources	M	H	M	M	H		M	L			M	
0620-350	Soil Mechanics	H	H	L	M	H		L				L	
0620-366	Transportation Engineering	H	H	L	M	H	L	M	H	M	M	M	L
0620-371	Structural Analysis II	H		M		H		H	M	M		H	
0620-371	Structural Analysis II	H		M		H		H	M	M		H	
0620-371	Structural Analysis II	H		M		H		H	M	M		H	
0620-373	Reinforced Concrete I	M		H	L	M	L	L	L	L			M
0620-401	Coastal Engineering Fundamentals	H	M	L		H		M	L			M	
0620-412	Open Channel Hydraulics	H	M	M				M				L	
0620-414	Hydraulic Engineering	M		H	L	M		M				M	
0620-430	Legal, Professional, and Social Aspects of				M	M	H	H	M	H	M	M	L
0620-430	Legal, Professional, and Social Aspects of				M	M	H	H	M	H	M	M	L
0620-434	Construction Estimation and Cost Control	M	M	M	M	M	M	M	M	M	M	H	H
0620-435	Construction Engineering and Management	M		M	M			M				M	M
0620-436	Construction Work Improvement	L			H	M		H	H			H	M
0620-437	Concrete Construction and Technology	H		H	M	H		M	M			M	
0620-449	Civil Engineering Systems	H	L		M	H	L	M	H	L	M	H	H
0620-451	Foundation Engineering	H	L	H	L	H	L	L				M	
0620-451	Foundation Engineering	H	L	H	L	H	L	L				M	
0620-451	Foundation Engineering	H	L	H	L	H	L	L				M	
0620-463	Highway Materials and Construction	M	M		M	M					M	M	M
0620-471	Steel Design I	H	M	H		H	M	H	M	H	H	H	M
0620-475	Prestressed Concrete	M		H		H		L	L	L	L		
0620-490	Capstone Design Course	H	M	H	M	H	H	H	M	M	M	M	
0620-490	Capstone Design Course	H	M	H	M	H	H	H	M	M	M	M	
0620-490	Capstone Design Course	H	M	H	M	H	H	H	M	M	M	M	

PERFORMANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0620-201	Introduction to Design	3		3	3	5	3	3	4	3	3	3	
0620-201	Introduction to Design												
0620-201	Introduction to Design	4			5	4	5	5	4	5	4	5	
0620-252	Engineering Materials	4	4	4				4	3		2		
0620-252	Engineering Materials	4	4	4				4	2		1		
0620-252	Engineering Materials	3	5	4				4	4		4		
0620-271	Structural Analysis I	4		3		4		3	4	2			
0620-310	Fluid Mechanics	4		4		4							
0620-311	Water Resources	5	4	4	4	5		3	3			2	
0620-311	Water Resources	4	4	4	4	4		4	4			4	
0620-350	Soil Mechanics	2	2	3	3	2		2				2	
0620-366	Transportation Engineering	5	4	4	4	5	4	4	5	4	5	5	4
0620-371	Structural Analysis II	4		5		5		4	4	4		5	
0620-371	Structural Analysis II	4		5		5		4	4	4		5	
0620-371	Structural Analysis II	5		4		4		4	4	4		5	
0620-373	Reinforced Concrete I	4		4	2	4	3	3	3	3			4
0620-401	Coastal Engineering Fundamentals	5		1		5		3	2			2	
620-412	Open Channel Hydraulics	4	4	4				3				4	
0620-414	Hydraulic Engineering	4		5	4	5		3				5	
0620-430	Legal, Professional, and Social Aspects				4	4	4	5	4	5	4	3	4
0620-430	Legal, Professional, and Social Aspects				4	4	4	4	4	4	4	4	4
0620-434	Construction Estimation and Cost	4	3	3	3	3	3	3	3	3	3	3	4
0620-435	Construction Engineering and	4		3	3			3				4	3
0620-436	Construction Work Improvement				4			4					
0620-437	Concrete Construction and Technology	5		3	4	5		4	5			4	
0620-449	Civil Engineering Systems	5	3		5	5	4	5	5	4	4	5	4
0620-451	Foundation Engineering	5	4	4	4	4	4	4				5	
0620-451	Foundation Engineering	3	3	4	4	4		3				5	
0620-451	Foundation Engineering	3	3	4	3	4		3				3	
0620-463	Highway Materials and Construction	5	4		5	5					5	4	
0620-471	Steel Design I	5	4	4		4	4	4	4	4	4	4	
0620-475	Prestressed Concrete	4		4		4		3	3	3	3		
0620-490	Capstone Design Course	5	3	5	4	5	4	4	5	5	5	5	
0620-490	Capstone Design Course	4		5	5	4	4	5				5	
0620-490	Capstone Design Course	3	3	3	2	3	3	2	3	4	3	3	
	Weighted Average	**4.1**	**3.7**	**3.9**	**3.8**	**4.3**	**3.8**	**3.8**	**3.9**	**4**	**3.8**	**4.1**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-201	Introduction to Design	this is a great course that prepares the student for upcoming design courses and also for real life problems. the fact that soft skills are a major focus in it is what made the students more interested in it and has eventually changed their perceptions on a great deal of issues that affect their daily lives and futures.
0620-310	Fluid Mechanics	This is a small size student number. Only Sixteen Females ; which never happened with my long teaching career in this university. The number of students in this class conform with the international norm. This time teaching these girls is very pleasant, interesting and the interactions with the students are in its peak. The students standing ranges from very good to average.
0620-311	Water Resources	1- The students are lacking the efficient use of computer (eg. MS excel or Matlab). This computer usage deficiency may lead to a consqent problem in capstone projects. 2- The evaluation of students team work (outcome d) might be subjective. The teamwork is not explicitly evaluated in group work in the laboratory experiments and reports 3- Writing skills of students need to be improved 4- Outcomes d and g should be of low relevance
0620-350	Soil Mechanics	1. Students have deficiencies in English language understanding, reading, speaking, and writing. This is reflected on level of understanding of course materials. 2. Students tends not to participate in class discussion due to their lack in English. 3. Students tend to use Arabic more than English in course work due to their lack in English. 4.. Course materials are very extensive and long. Suggestions: It should be split into two 5 Reducing the weight assigned to homework, have resulted in reducing the spread of homework copying which is reflected on the students understanding 6 In general, students do not have good basic engineering understanding of units and measurements as this is a fundamental issue
0620-366	Transportation Engineering	More quizzes are needed for the course. More projects should be given Lower load on labs more practice on transportation software
0620-371	Structural Analysis II	There must be a rethinking of the advancements of IT applications and its role compared to the basic tools as the foundations of the solutions in order to arrive at the best ratio in teaching the subjects.
0620-371	Structural Analysis II	There must be a rethinking of the advancements of IT applications and its role compared to the basic tools as the foundations of the solutions in order to arrive at the best ratio in teaching the subjects.
0620-373	Reinforced Concrete I	This class was ended by 2 students after 7 students registered.
0620-401	Coastal Engineering Fundamentals	In this coarse designing coastal structure must be added to this course so the student can practice the design. Also a small project is suggested.
0620-412	Open Channel Hydraulics	This is a group of 36 Students; 30 Females and 6 Males 2 dropped the course . The group ranges from excellent /

		very good to above average academic standing. The large number of student population makes the learning process is very difficult and the interaction between professor and students is difficult.Tests and Exams are difficult to conduct in small class room.
0620-437	Concrete Construction and Technology	The ratings of student outcomes ranged between satisfactory to excellent. Accordingly, it is recommended to continue to monitor the performance of students on achieving the learning outcomes.
0620-451	Foundation Engineering	The students applied all given tools in solving and managing field related problems.
0620-451	Foundation Engineering	Students do not like questions that require written explanations (reasons/causes of certain behaviour/advantages and disadvantages of certain foundation types). Students need several mini design projects but the contents of the course do not allow enough time to do that. To compensate, a couple of classes are assigned for discussing case studies involving design details.
0620-463	Highway Materials and Construction	this is an effective course that prepares the students for upcoming challenges as entry level engineers and broadens their horizons with respect to problems that they will face in the form of engineering problems related to human deficincies or engineering liabilities.
0620-471	Steel Design I	This is an above average batch of students
0620-475	Prestressed Concrete	This was a 'good' class. Students tried their best, but some were not upto the challenge of this advanced class.

Spring semester

Instructors: **21**

Courses: **31**

RELEVANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0620-201	Introduction to Design	M		M	H	H	M	H	L	L	M	L	
0620-310	Fluid Mechanics	H		L		H							
0620-311	Water Resources	M	H	M	M	H		M	L			M	
0620-311	Water Resources	M	H	M	M	H		M	L			M	
0620-311	Water Resources	M	H	M	M	H		M	L			M	
0620-312	Environmental Engineering	H	H	H	H	H	L	H	L		M	M	M
0620-350	Soil Mechanics	H	H	L	M	H		L				L	
0620-350	Soil Mechanics	H	H	L	M	H		L				L	
0620-350	Soil Mechanics	H	H	L	M	H		L				L	
0620-366	Transportation Engineering	H	H	L	M	H	L	M	H	M	M	M	L
0620-371	Structural Analysis II	H		M		H		H	M	M		H	
0620-371	Structural Analysis II	H		M		H		H	M	M		H	
0620-371	Structural Analysis II	H		M		H		H	M	M		H	
0620-373	Reinforced Concrete I	M		H	L	M	L	L	L	L			M

0620-401	Coastal Engineering Fundamentals	H	M	L		H		M	L			M	
0620-412	Open Channel Hydraulics	H	M	M				M				L	
0620-414	Hydraulic Engineering	M		H	L	M		M				M	
0620-430	Legal, Professional, and Social Aspects of				M	M	H	H	M	H	M	M	L
0620-434	Construction Estimation and Cost Control	M	M	M	M	M	M	M	M	M	M	H	H
0620-451	Foundation Engineering	H	L	H	L	H	L	L				M	
0620-451	Foundation Engineering	H	L	H	L	H	L	L				M	
0620-461	Traffic Engineering	H	M	M	L	M	M	M	M	L	M	H	
0620-473	Reinforced Concrete II	H		H		H	H	M	M	H		M	H
0620-473	Reinforced Concrete II	H		H		H	H	M	M	H		M	H
0620-490	Capstone Design Course	H	M	H	M	H	H	H	M	M	M	M	
0620-490	Capstone Design Course	H	M	H	M	H	H	H	M	M	M	M	
0620-490	Capstone Design Course	H	M	H	M	H	H	H	M	M	M	M	

PERFORMANCE

Course	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0620-201	Introduction to Design	3		3	3	4	3	3	4	3	3	3	
0620-310	Fluid Mechanics	3		3		3							
0620-311	Water Resources	5	5	5	5	5		5	5			5	
0620-311	Water Resources	5	5	5	5	5		5	5			5	
0620-311	Water Resources	5	4	2	3	3		3	4			3	
0620-312	Environmental Engineering	4	5	4	4	5	3	4	3		3	3	3
0620-350	Soil Mechanics	3	3	3	3	3		4				3	
0620-350	Soil Mechanics	3	3	3	3	3		4				3	
0620-350	Soil Mechanics	3	3	3	3	3		3				1	
0620-366	Transportation Engineering	5	4	3	3	4	3	3	3	3	3	3	3
0620-371	Structural Analysis II	4		5		5		4	4	4		5	
0620-371	Structural Analysis II	4		4		5		4	4	5		5	
0620-371	Structural Analysis II	4		5		5		4	4	4		5	
0620-373	Reinforced Concrete I	4	2	4	2	4	2	3	2	3	3	3	
0620-401	Coastal Engineering Fundamentals	5	2	4		5		5	4			5	
0620-412	Open Channel Hydraulics	4	4	4				3				4	
0620-414	Hydraulic Engineering	4		5	4	5		3				5	
0620-430	Legal, Professional, and Social				4	5	5	4	4	5	3	3	3
0620-434	Construction Estimation and Cost	5	1	5	4	5	4	4	4	5	4	5	4
0620-451	Foundation Engineering	3	3	4	4	4		3				5	
0620-451	Foundation Engineering	3	3	4	3	4		3				3	
0620-461	Traffic Engineering	4	3	3	4	3		4	3	3	3	4	
0620-473	Reinforced Concrete II	3		2		2		2		2			
0620-473	Reinforced Concrete II	3		3		3	4	3	4	4		3	3
0620-490	Capstone Design Course	5	5	5	5	5	5	5	5	5	5	5	
0620-490	Capstone Design Course	5	1	5	5	5	5	5	5	5	4	5	
0620-490	Capstone Design Course	3	3	3	4	3	3	3	4	3	4	3	
	Weighted Average	**3.9**	**3.5**	**3.9**	**3.8**	**4.1**	**4**	**3.8**	**3.9**	**3.9**	**3.6**	**4.1**	**3.3**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-310	Fluid Mechanics	I taught a class of 31 female students with 30 students passed the course. Overall students performance is satisfactory with relatively worst performance in the final exam which is considered acceptable due to the comprehensive and cumulative nature of the final exam. In my opinion, fluid mechanics is very important course in civil engineering and should include laboratory experiments to illustrate fundamentals laws governing fluid flow in civil engineering systems
0620-311	Water Resources	Water resources book should be changed
0620-311	Water Resources	Water resources book should be changed
0620-311	Water Resources	This is 30 female students class. Students showed excellent performance in using fundamentals laws of science and engineering in analyzing engineering systems (e.g. open channels flow). In addition, students worked together in performing lab experiments and writing lab reports in a very good manner (outcomes d and g). However, the ability to formulate problems was assessed to be satisfactory with most of the students were not able to formulate groundwater draw-down equation set up for a given pumping schedule. Moreover, the students design skills are assessed to be weak and I think this is because most of students did not have been exposed to design problems at this level (300 level classes). A suggestion to overcome that is to develop students design skills earlier in 200 level classes. The problem of copying was noticed between students while submitting soft copies of their Excel exercises. The high weight of lab work and homework problems gave the students the opportunity to achieve high overall grades in the course
0620-350	Soil Mechanics	The performance of students in the class was satisfactory. The students worked in groups for the lab experiments, where they conducted their work themseleves.
0620-350	Soil Mechanics	The performance of students in the class was satisfactory. The students worked in groups for the lab experiments, where they conducted their work themseleves.
0620-350	Soil Mechanics	1. Communications: Students have deficiencies in English language understanding, reading, speaking, and writing. This is reflected on level of understanding of course materials. Students tends not to participate in class discussion due to their lack in English. Students tend to use Arabic more than English in course work due to their lack in English. 2. Course materials are very extensive and long. Suggestions: It should be split into two. 3. In general, students do not have good basic engineering understanding of units and measurements as this is a fundamental issue
0620-371	Structural Analysis II	There must be a rethinking of the advancements of IT applications and its role compared to the basic tools as the foundations of the solutions in order to arrive at the best ratio in teaching the subjects.
0620-371	Structural Analysis II	There must be a rethinking of the advancements of IT applications and its role compared to the basic tools as

		the foundations of the solutions in order to arrive at the best ratio in teaching the subjects.
0620-412	Open Channel Hydraulics	This is a group of 30 Students; 27 Females and 3 Males. 5 females and 1 Male dropped the course . The group ranges from very good to above average academic standing. This is a moderate size class compared to previous years which made the learning process very difficult and the interaction between professor and students is difficult.
0620-451	Foundation Engineering	The students applied all given tools in solving and managing field related problems. The overall performance of students is satisfactory.
0620-451	Foundation Engineering	Students do not prefer questions that require written explanations (reasons/causes of certain behaviour). Students need several mini design projects but the contents of the course do not allow enough time to do that. To compensate, a couple of classes are assigned for discussing case studies involving design details.
0620-461	Traffic Engineering	University & Department should help in upgrading the computer hardware & software used in the course.
0620-473	Reinforced Concrete II	This is the 3rd time I am teaching this course and the experience was similar to the earlier attempts. The students come with a very weak preparation in RC1 and expect to repeat the contents of RC1 course as well. It is suggested to eliminate the RC2 course as a compulsory course and offer this course as an elective to motivated students only. This arrangement will require some changes in RC1 course. It is to be noted that most universities offer only one reinforced concrete design course that covers the basic fundamentals. This issue needs to be discussed in the Structures TAG. Second issue is the extreme lack of skills for preparing and understanding structural design sketches, load path in reinforced concrete building structural systems and computation of structural loads. These issues need attention of the Structures TAG as well as the UPC of the department.
0620-490	Capstone Design Course	1. Upon topic selection, data availability should be checked. 2. More focus on professional issues and practice in engineering projects 3. Better communication with governmental organizations is needed 4. Good to have written exam beside the oral exam to better evaluate student work
0620-490	Capstone Design Course	This coarse needs to modified to meet the objectives
0620-490	Capstone Design Course	This semester I have supervised a total of 16 students distributed over four groups resulting in four different projects, each with unique idea and with direct applications to Kuwait Development Plan. Each project covered at least three disciplines in civil engineering. I would recommend to be covered in two semesters to give the students enough time to perform detailed search and design

Summer semester

Instructors: **5**

Courses: **5**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0620-311	Water Resources	M	H	M	M	H		M	L			M	
0620-350	Soil Mechanics	H	H	L	M	H		L				L	
0620-366	Transportation Engineering	H	H	L	M	H	L	M	H	M	M	M	L
0620-434	Construction Estimation and Cost Control	M	M	M	M	M	M	M	M	M	M	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0620-311	Water Resources	3	4	3	4	1		4	3			4	
0620-350	Soil Mechanics	3	3	3	3	3		3				1	
0620-366	Transportation Engineering	5	4	3	3	4	3	3	3	3	3	3	3
0620-434	Construction Estimation and Cost Control	5	1	4	4	5	4	4	4	5	4	5	4
	Weighted Average	**4**	**3.2**	**3.3**	**3.5**	**3.1**	**3.7**	**3.6**	**3.3**	**4**	**3.5**	**3.8**	**3.8**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-311	Water Resources	This a 31 students section. The performance was assessed to be satisfactory overall with weaknesses in formulating engineering problems from real cases scenarios and to do design problems. The ability to use excel in doing homework assignments is assess to be satisfactory. The students lack the the skill f writing lab reports in a professional fashion
0620-350	Soil Mechanics	1. Communications: Students have deficiencies in English language understanding, reading, speaking, and writing. This is reflected on level of understanding of course materials. Students tends not to participate in class discussion due to their lack in English. Students tend to use Arabic more than English in course work due to their lack in English. 2. Course materials are very extensive and long. Suggestions: It should be split into two. 3. In general, students do not have good basic engineering understanding of units and measurements as this is a fundamental issue

Computer Engineering Program

Fall semester

Instructors: **25**

Courses: **39**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0612-201	Advanced Programming Techniques		H			H						H			
0612-203	Discrete Mathematics for Computer Engineering.					H									
0612-203	Discrete Mathematics for Computer Engineering.					H									
0612-207	Data Structures					L						M			
0612-207	Data Structures					L						M			
0612-221	Software Engineering I											M			
0612-221	Software Engineering I	H	L	H	H	H	H	H	H	L	L	H			
0612-262	Fundamentals of Digital Logic					H						H			
0612-262	Fundamentals of Digital Logic					H									
0612-262	Fundamentals of Digital Logic					H						H			
0612-262	Fundamentals of Digital Logic					H						H			
0612-262	Fundamentals of Digital Logic					H						H			
0612-300	Design and Analysis of Algorithms					H									
0612-300	Design and Analysis of Algorithms														
0612-325	Human Computer Interaction											H			
0612-341	Database Systems-I					H			L			M			
0612-356	Computer Networks I					M						L			
0612-363	Introduction to Microprocessors	H		H		H						H			
0612-363	Introduction to Microprocessors					H						H			
0612-363	Introduction to Microprocessors											H			
0612-363	Introduction to Microprocessors					H									
0612-363	Introduction to Microprocessors					H						H			
0612-368	Computer Organization					H						H			
0612-395	Computer Systems Engineering		H			H			M			H			
0612-395	Computer Systems Engineering		H			H			H			M			
0612-395	Computer Systems Engineering		H			H			H			M			
0612-443	Multimedia Systems and Applications	H				H						M			
0612-453	Cryptography and Network Security	H	H	H	L	H	M	H	H	H	M	H			
0612-456	Computer Networks II					L									
0612-468	Computer Architecture	H		M		H						H			
0612-468	Computer Architecture											M			
0612-495	Capstone Design		H			H			M			H			
0612-495	Capstone Design		H			H			H			H			
0612-495	Capstone Design		H			H			H			H			

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0612-201	Advanced Programming Techniques		4			3						4			
0612-203	Discrete Mathematics for Computer Engineering.					3									
0612-203	Discrete Mathematics for Computer Engineering.					5									
0612-207	Data Structures					4						5			
0612-207	Data Structures					4						3			
0612-221	Software Engineering I											4			
0612-221	Software Engineering I	5	5	5	5	5	5	5	4	4	4	5			
0612-262	Fundamentals of Digital Logic					4						4			
0612-262	Fundamentals of Digital Logic					5									
0612-262	Fundamentals of Digital Logic					4						4			
0612-262	Fundamentals of Digital Logic					4						5			
0612-262	Fundamentals of Digital Logic					4						5			
0612-300	Design and Analysis of Algorithms					3									
0612-300	Design and Analysis of Algorithms					3									
0612-325	Human Computer Interaction											3			
0612-341	Database Systems-I					3			2			3			
0612-356	Computer Networks I					3						4			
0612-363	Introduction to Microprocessors	4		5		4						4			
0612-363	Introduction to Microprocessors					4						4			
0612-363	Introduction to Microprocessors											3			
0612-363	Introduction to Microprocessors					5									
0612-363	Introduction to Microprocessors					3						3			
0612-368	Computer Organization					3						3			3
0612-395	Computer Systems Engineering		4			5			5			5			3
0612-395	Computer Systems Engineering		4			4			5			5			
0612-395	Computer Systems Engineering		5			5			5			5			
0612-443	Multimedia Systems and Applications														
0612-453	Cryptography and Network Security	4	4	4		4	5	3	5	5	4	4			
0612-456	Computer Networks II					4									
0612-468	Computer Architecture	5		4								3			
0612-468	Computer Architecture											3			
0612-495	Capstone Design		4			5			5			5			
0612-495	Capstone Design		5			5			5			5			
0612-495	Capstone Design		4			4			3			4			
	Average	**4.5**	**4.3**	**4.5**	**5**	**4**	**5**	**4**	**4.3**	**4.5**	**4**	**4**	**0**	**0**	**3**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0612-207	Data Structures	See attachments.
0612-300	Design and Analysis of Algorithms	It is very clear that students need to practice solving problems outside the class session time. I would suggest offering recitation sessions given by TA/Engineers to be focusing only on solving problems in details with the students as a practice of problem solving.
0612-443	Multimedia Systems and Applications	None
0612-495	Capstone Design	Probably offering sessions on latest technology tools will help students to shorten the learning time when they start on implementing the project.

Spring Semester

Instructors: **25**

Courses: **56**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0612-201	Advanced Programming Techniques	H													
0612-201	Advanced Programming Techniques		H			H						H			
0612-203	Discrete Mathematics for Computer Engineering.					H									
0612-203	Discrete Mathematics for Computer Engineering.					H									
0612-207	Data Structures					L						M			
0612-210	Computer Engineering Ethics								H						
0612-221	Software Engineering I											H			
0612-262	Fundamentals of Digital Logic					H						H			
0612-262	Fundamentals of Digital Logic					H						H			
0612-262	Fundamentals of Digital Logic					H						H			
0612-264	Digital Logic Laboratory		H									H			
0612-264	Digital Logic Laboratory		H									H			
0612-264	Digital Logic Laboratory		H									H			
0612-264	Digital Logic Laboratory		H									H			
0612-264	Digital Logic Laboratory		H									H			
0612-264	Digital Logic Laboratory	M	H	L	M	H	L	L				M			
0612-300	Design and Analysis of Algorithms					H									
0612-325	Human Computer Interaction						M								
0612-341	Database Systems-I					H			H			H			
0612-356	Computer Networks I					M						L			
0612-363	Introduction to Microprocessors					H						H			
0612-363	Introduction to Microprocessors					H						H			
0612-363	Introduction to Microprocessors					H						H			
0612-363	Introduction to Microprocessors					M						H			
0612-363	Introduction to Microprocessors					H						H			

0612-364	Microprocessors Laboratory		H									H			
0612-364	Microprocessors Laboratory		H									H			
0612-364	Microprocessors Laboratory		H									H			
0612-364	Microprocessors Laboratory					H						H			
0612-364	Microprocessors Laboratory					M						H			
0612-364	Microprocessors Laboratory		H									H			
0612-364	Microprocessors Laboratory		H									H			
0612-368	Computer Organization					H						H			
0612-368	Computer Organization					H						H			
0612-395	Computer Systems Engineering		H			H			H			H			
0612-395	Computer Systems Engineering		H			H			H	H		M			
0612-395	Computer Systems Engineering		H			H			H			M			
0612-395	Computer Systems Engineering		H			H			H			M			
0612-445	Operating System Principles		H												
0612-445	Operating System Principles		H												
0612-456	Computer Networks II					L									
0612-461	Design of Digital Systems		H			H						H			
0612-468	Computer Architecture											H			
0612-469	Computer Architecture Laboratory		H									H			
0612-469	Computer Architecture Laboratory		H									H			
0612-469	Computer Architecture Laboratory		H									H			
0612-474	ASIC Design	H	H	H	M	H		M				H			
0612-495	Capstone Design		H			H			M			H			
0612-495	Capstone Design		H			H			H			H			
0612-495	Capstone Design		H			H			H			H			

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0612-201	Advanced Programming Techniques	4													
0612-201	Advanced Programming Techniques		4			5						5			
0612-203	Discrete Mathematics for Computer Engineering.					3									
0612-203	Discrete Mathematics for Computer Engineering.					3									
0612-207	Data Structures					4						4			
0612-210	Computer Engineering Ethics								4						
0612-221	Software Engineering I											5			
0612-262	Fundamentals of Digital Logic					3						3			
0612-262	Fundamentals of Digital Logic					3						2			
0612-262	Fundamentals of Digital Logic					5						5			
0612-264	Digital Logic Laboratory		5									4			
0612-264	Digital Logic Laboratory		4									4			
0612-264	Digital Logic Laboratory		4									4			
0612-264	Digital Logic Laboratory		3									3			
0612-264	Digital Logic Laboratory		4									4			

0612-264	Digital Logic Laboratory	4	4		4	4					4			
0612-300	Design and Analysis of Algorithms					4								
0612-325	Human Computer Interaction						4							
0612-341	Database Systems-I					4			4		5			
0612-356	Computer Networks I					2					4			
0612-363	Introduction to Microprocessors					3					3			
0612-363	Introduction to Microprocessors					4					4			
0612-363	Introduction to Microprocessors					3					4			
0612-363	Introduction to Microprocessors					3					3			
0612-363	Introduction to Microprocessors					4					4			
0612-364	Microprocessors Laboratory		4								5			
0612-364	Microprocessors Laboratory		4								4			
0612-364	Microprocessors Laboratory		4								4			
0612-364	Microprocessors Laboratory					5					5			
0612-364	Microprocessors Laboratory					5					5			
0612-364	Microprocessors Laboratory		4								4			
0612-364	Microprocessors Laboratory		4								4			
0612-368	Computer Organization					4					4			
0612-368	Computer Organization					4					3		3	
0612-395	Computer Systems Engineering					5			5		5			
0612-395	Computer Systems Engineering		3			3			4	5	4			
0612-395	Computer Systems Engineering		5			5			5		5			
0612-395	Computer Systems Engineering		3			3			4		3			
0612-445	Operating System Principles		3											
0612-445	Operating System Principles		4											
0612-456	Computer Networks II					4								
0612-461	Design of Digital Systems		4			4					4			
0612-468	Computer Architecture										3			
0612-469	Computer Architecture Laboratory		3								3			
0612-469	Computer Architecture Laboratory		3								3			
0612-469	Computer Architecture Laboratory		3								3			
0612-474	ASIC Design	5	3	4	4	4		3			4			
0612-495	Capstone Design		3			4			4		4			
0612-495	Capstone Design		4			4			5		5			
0612-495	Capstone Design		4			5			5		5			
	Weighted Average	**4.4**	**3.7**	**4**	**4**	**3.9**	**4**	**3**	**4.5**	**5**	**0**	**4**	**0**	**0**	**0**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0612-203	Discrete Mathematics for Computer Engineering.	There were more instances (other homework sets and exams) where students were able to apply the mathematical techniques used to solve real-life problems related to probability, counting, etc. These have been

		covered in other class activities. However, it is the opinion of the instructor that this outcome is not suitable for this course...
0612-300	Design and Analysis of Algorithms	It is recommended for this course that students get introduced to a small project to practice developing an algorithm suitable to a given problem. In this way, students will use and manipulate the learned algorithms in the course and how to use them in different ways in practice.
0612-341	Database Systems-I	The given course project was very appreciated by the students where it allowed them to apply taught concepts into the project besides the DB lab practices given.
0612-364	Microprocessors Laboratory	none
0612-461	Design of Digital Systems	For outcomes b and k: The students have designed, tested, synthesized (RTL design), documented and presented an arithmetic circuits that add, subtract, and multiply numbers using Quartus CAD tool. Each type of circuit will be implemented in two ways: first by writing VHDL code that describes the required functionality, and second by making use of the predefined operations in VHDL simulator library (e.g. IEEE.std_logic_arith.all). The results produced for various implementations will be compared, both in terms of the circuit structure and its speed of operation. Students have simulated the design components using vector waveform simulation for different scenarios and interpreted the simulation results to prove the correctness of these components. Later, these components were compiled in one big file to implement the complete design and verify its correctness. Also, students have documented all the design steps and analyzed the results in a technical report. Finally, students have presented the work in class and applied their knowledge and communication skills. For outcome e: The students have solved many problems in homework's and exams. A good example on this outcome was implementing a digital design using Finite State Machine (FSM) and testing the design using waveform simulation.

Summer Semester

Instructors: **2**

Courses: **2**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0612-363	Introduction to Microprocessors	H		H		H						H	
0612-424	Value Engineering												

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0612-363	Introduction to Microprocessors	5		4		4						5	
0612-424	Value Engineering	5	5	4	4	4	5	4	4	3	4	4	4
	Weighted Average	**5**	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**5**	**0**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Electrical Engineering Program

Fall semester

Instructors: **15**

Courses: **37**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0610-212	Engineering Math														
0610-233	Electronics I	L		H								M			
0610-233	Electronics I	L		H								M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-234	Electronics Laboratory I		H		M			M				M			
0610-297	Corner-Stone Design														
0610-297	Corner-Stone Design														
0610-297	Corner-Stone Design														
0610-297	Corner-Stone Design														
0610-312	Signals and Systems	H				M						H		H	
0610-318	DSP														
0610-318	DSP														
0610-318	DSP														
0610-320	Electromagnetic Field Theory	H		M								L		H	
0610-343	Energy Conversion I	M		H		H						L			
0610-350	Electrical Power Systems I	M		H					M			M			
0610-370	Control Theory I	H		H		H			H			H		H	H
0610-370	Control Theory I	H		H		H			H			H		H	H
0610-370	Control Theory I	H		H		H			H			H		H	H
0610-381	Communication Theory	H		H								L	M		
0610-381	Communication Theory	H		H								L	M		
0610-381	Communication Theory	H		H								L	M		
0610-421	Microwave Engineering	H		H		H		M	M	M	M	M			
0610-432	Analog Integrated Circuits	M		H					M			L			M
0610-433	Electronics III			H				M	M			M			M
0610-443	Energy Conversion II	M		H	M			M				M			
0610-458	Electric Power Distribution Engineering			H		H						M			
0610-460	Introduction to Communication Networks		H	H	M	H		M				M			
0610-472	Control Theory II	H		H		M			H			H		H	H
0610-497	Engineering Design	H	H	H	H	H	H	H	M	M	M	H			H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0610-212	Engineering Math	4	4	4	3	4	5	5	4	4	4	4	3	4	3
0610-233	Electronics I	4		4								4			
0610-233	Electronics I			3								3			
0610-234	Electronics Laboratory I		4		4			4				4			
0610-234	Electronics Laboratory I		4		4			4				4			
0610-234	Electronics Laboratory I		3		3			3				3			
0610-234	Electronics Laboratory I		3		3			3				3			
0610-234	Electronics Laboratory I		5		3			4				4			
0610-234	Electronics Laboratory I		5		3			4				4			
0610-234	Electronics Laboratory I		4		3			4				3			
0610-297	Corner-Stone Design	3	4	4	4	3	3	4	4	4	4	3	2	3	4
0610-297	Corner-Stone Design	4	4	3	4	3	4	4	3		4	4			
0610-297	Corner-Stone Design	3	4	4	4	3	4	4	4	4	4	4			4
0610-297	Corner-Stone Design	4	4	4	4	3	4	3	3	3	3	3	2	2	3
0610-312	Signals and Systems	3				2						3		2	
0610-318	DSP	3	3	3	3	3	3	3	3	3	3	4	4	3	4
0610-318	DSP	4	3	4	3	4	3	3	4	3	3	4	4	4	3
0610-318	DSP	3	3	3	3	4	3	3	3	4	4	3	3	3	3
0610-320	Electromagnetic Field Theory	3		3								3		3	
0610-343	Energy Conversion I	4		3		4						3			
0610-350	Electrical Power Systems I	4		4	3			4	3			3			
0610-370	Control Theory I	1		1		1			1			1		1	1
0610-370	Control Theory I	3		3		3			3			3		4	3
0610-370	Control Theory I	3		3		3						2		3	2
0610-381	Communication Theory	4		3								3	3		
0610-381	Communication Theory	3		3								3	1		
0610-381	Communication Theory	3		3								3	2		
0610-421	Microwave Engineering	4		5		4		3	4	3	4	4			
0610-432	Analog Integrated Circuits	3		3								3			3
0610-433	Electronics III			2								4			4
0610-443	Energy Conversion II	4		4	3			4				3			
0610-458	Electric Power Distribution Engineering	3		3		3						4			
0610-460	Introduction to Communication Networks		2	3	4	4		4				2			
0610-472	Control Theory II	3		3		4						2		4	3
0610-497	Engineering Design	3	4	4	4	3	3	4	3	3	3	4			4
	Weighted Average	**3.2**	**3.8**	**3.2**	**3.4**	**3.1**	**3**	**3.7**	**2.7**	**3**	**3.5**	**3.1**	**2**	**2.8**	**2.8**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-212	Engineering Math	This course must balance between circuit theory than field theory.
0610-318	DSP	The number of students enrolled in each section should not exceed the instructor-to-student ratio (i.e., 25 to 30 students/class). This is to enssure and improve the communication skills between the instructor and the students as well as the design skills to meet the requirements assigned by the ABET.
0610-370	Control Theory I	The students need to be given MATLAB in depth in previous courses.
0610-433	Electronics III	students were weak in design problems in which gate dimensions to obey specifications (propagation delays, power, etc..) should be determined
0610-458	Electric Power Distribution Engineering	The students attendance was not satisfactory and the homework solving was not taken seriously. The students mathematical and engineering background need more emphasize and enhancement
0610-460	Introduction to Communication Networks	Outcomes b & k are not very relevant for this course as it stands now (without labs). This should be re-considered.
0610-497	Engineering Design	The evaluation was based on inputs from proposals, progress reports, oral presentations, final project reports, final projects demonstration where instructor and external instructor assessed the four projects.

Spring semester

Instructors: **11**

Courses: **26**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0610-213	Linear Circuits Analysis	H										H			
0610-213	Linear Circuits Analysis	H										H			
0610-297	Corner-Stone Design														
0610-297	Corner-Stone Design														
0610-312	Signals and Systems	H				M						H		H	
0610-312	Signals and Systems	H				M						H		H	
0610-312	Signals and Systems	H				M						H		H	
0610-312	Signals and Systems	H				M						H		H	
0610-318	DSP														
0610-318	DSP														
0610-318	DSP														
0610-343	Energy Conversion I	M		H		H						L			
0610-374	Control Laboratory I	H	H	H	M	M		H	H			H			H
0610-381	Communication Theory	H		H								L	M		
0610-381	Communication Theory	H		H								L	M		
0610-410	Active Filter Design	M		H								L			M
0610-420	Antenna and Propagation	H		H	M			M	M	M	M	M		H	H
0610-456	Power Apparatus and Systems	H		H		H			H			H			H
0610-458	Electric Power Distribution Engineering			H		H						M			
0610-472	Control Theory II	H		H		M			H			H		H	H
0610-477	Optimization Techniques	H		M	M	H						H		H	
0610-482	Digital Communication	M				M							H		
0610-490	Special Topics in Electrical Engineering														
0610-497	Engineering Design	H	H	H	H	H	H	H	M	M	M	H			H
0610-497	Engineering Design	H	H	H	H	H	H	H	M	M	M	H			H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0610-213	Linear Circuits Analysis	4										3			
0610-213	Linear Circuits Analysis	3										3			
0610-297	Corner-Stone Design	4	4	3	4	3	4	4	3		4	4			
0610-297	Corner-Stone Design	2	4	4	4	3	3	3	4	2		1			
0610-312	Signals and Systems	3				3						3		3	
0610-312	Signals and Systems	3				3						3		3	
0610-312	Signals and Systems	3				3						3		3	
0610-312	Signals and Systems	1				1						1		2	
0610-318	DSP	3	3	3	3	4	3	3	3	3	3	4	4	4	4
0610-318	DSP	3	3	3	3	4	3	3	3	4	4	3	3	3	3
0610-318	DSP			4					3					4	
0610-343	Energy Conversion I	4		3		4						3			
0610-374	Control Laboratory I	4	4	4	4	4		4	4			4			4
0610-381	Communication Theory	1		3								2	2		
0610-381	Communication Theory	4		4								3	3		
0610-410	Active Filter Design	4		4								4			4
0610-420	Antenna and Propagation	4		4	4			3	3	3	4	4		5	4
0610-456	Power Apparatus and Systems	4		4		4			4			4			3
0610-458	Electric Power Distribution Engineering	3		3		3						4			
0610-472	Control Theory II	4		4		4			4			4		4	4
0610-477	Optimization Techniques	4		4	4	4						4		4	
0610-482	Digital Communication	3				3							3		
0610-490	Special Topics in Electrical Engineering														
0610-497	Engineering Design	3	4	3	3	3	3	4	3	3	3	4			4
0610-497	Engineering Design	3	3	3	3	3	3	3	3	3	3	2			2
	Weighted Average	**3.3**	**3.7**	**3.6**	**3.5**	**3.3**	**3**	**3.5**	**3.6**	**3**	**3.3**	**3.2**	**2.7**	**3.4**	**3.6**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-312	Signals and Systems	The course coverage must be seriously re-evaluated to take into consideration the course contents for EE213 (Linear Circuits) and EE318 (Digital Signal Processing) (and ideally even ENG205). Also, the course seems to be designed as pre-requisite course to the control courses!!!
0610-318	DSP	The number of students enrolled in each section should not exceed the instructor-to-student ratio (i.e., 25 to 30 students/class). This is to enssure and improve the communication skills between the instructor and the students as well as the design skills to meet the requirements assigned by the ABET.
0610-458	Electric Power Distribution Engineering	The students attendance was not satisfactory and the homework solving was not taken seriously. The students mathematical and engineering background need more emphasize and enhancement
0610-482	Digital Communication	The weakness of the students had to be taking care of in the early stages, and special focuses on thier abilities and skills are needed on how to apply knowledge of mathematics and statistics related to the engineering field of digital communications.
0610-490	Special Topics in Electrical Engineering	No outcomes were supplied by the administrator on this evaluation form.
0610-497	Engineering Design	The evaluation was based on inputs from proposals, progress reports, oral presentations, final project reports, final projects demonstration where instructor and external instructor assessed the four projects.
0610-497	Engineering Design	Presentation, design and reporting skills maybe improved through EE297.

Summer semester

Instructors: **7**

Courses: **10**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0610-213	Linear Circuits Analysis	H										H			
0610-312	Signals and Systems	H				M						H		H	
0610-318	DSP														
0610-318	DSP														
0610-333	Electronics II	L		H		H						M			
0610-333	Electronics II	L		H		H						M			
0610-334	Electronics Laboratory II	L	H	M	M			H	M			H			M
0610-334	Electronics Laboratory II	L	H	M	M			H	M			H			M
0610-350	Electrical Power Systems I	M		H					M			M			
0610-416	Instrumentation and Measurements		M	H				M	M			M			M

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l	m	n
0610-213	Linear Circuits Analysis	3										3			
0610-312	Signals and Systems	3				3						3		3	
0610-318	DSP	4	3	4	3	4	4	3	4	3	4	4	3	4	4
0610-318	DSP	3	3	3	3	4	3	3	3	3	3	3	3	3	3
0610-333	Electronics II	4		4		4						3			
0610-333	Electronics II	4		4		4						3			
0610-334	Electronics Laboratory II	3	3	3	3			3				3			3
0610-334	Electronics Laboratory II	3	3	3	3			3				3			3
0610-350	Electrical Power Systems I	4		3					4			4			
0610-416	Instrumentation and Measurements			3											
	Weighted Average	**3.3**	**3**	**3.4**	**3**	**3.8**	**0**	**3**	**4**	**0**	**0**	**3.1**	**0**	**3**	**3**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-318	DSP	The number of students enrolled in each section should not exceed the instructor-to-student ratio (i.e., 25 to 30 students/class). This is to enssure and improve the communication skills between the instructor and the students as well as the design skills to meet the requirements assigned by the ABET.

Industrial & Management Systems Engineering Program

Fall semester

Instructors: **14**

Courses: **29**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0660-221	Introduction to Industrial Engineering		H		H	H	H	H		H			
0660-312	Industrial Engineering Labs		H		H			H			H	H	
0660-312	Industrial Engineering Labs		H		H			H			H	H	
0660-321	Work Design and Measurement	H	H	H					H		H	H	H
0660-325	Safety and Health for Engineers		H		H		H	H	H	H	H	H	H
0660-351	Engineering Statistical Analysis	H	H			H						H	H
0660-351	Engineering Statistical Analysis	H	H			H						H	H
0660-352	Production Cost Analysis	H				H					H	H	H
0660-361	Operations Research I	H	H	H	H	H		H		H		H	H
0660-372	Project Management and Control	H	H	H	H	H	H	H	H	H	H	H	H
0660-381	Data and Decision Analysis	H	H	H	H	H		H				H	H
0660-425	Human Factors Engineering	H	H	H	H	H	H	H	H	H	H	H	H
0660-434	Facilities Planning and Design	H		H		H						H	H
0660-434	Facilities Planning and Design	H		H		H						H	H
0660-451	Reliability and Maintainability Engineering	H	H	H	H	H	H	H		H	H	H	H
0660-454	Production Planning and Inventory Control	H		H		H						H	H
0660-457	Quality Control	H	H	H	H	H	H	H	H	H	H	H	H
0660-459	Quality in Healthcare	H	H	H	H	H	H	H	H	H	H	H	H
0660-461	Operations Research II	H				H						H	H
0660-471	Engineering Management				H		H	H	H	H	H	H	H
0660-481	Systems Simulation		H	H	H	H		H		H		H	H
0660-489	Special Topics in Management Systems Engineering												
0660-496	Industrial Engineering Design	H	H	H	H	H	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0660-209		5				4	4	5	4	5	5		
0660-221	Introduction to Industrial Engineering	4	4		5	4	3	4		4		3	
0660-221	Introduction to Industrial Engineering	4	4		5	4	3	4		4		3	
0660-221	Introduction to Industrial Engineering	4	4		4	4	3	4		4		3	
0660-321	Work Design and Measurement	4	4	4								4	
0660-325	Safety and Health for Engineers		4		4		4	4	4	4	4	4	
0660-351	Engineering Statistical Analysis	4	3			4						4	3
0660-352	Production Cost Analysis	3				3			4	3			
0660-372	Project Management and Control				5		5	5		4		4	
0660-381	Data and Decision Analysis		4			4						4	

0660-425	Human Factors Engineering				4	4			4	4		4	
0660-434	Facilities Planning and Design	3		4		4		4				4	
0660-451	Reliability and Maintainability Engineering	4	3	3	4	4	3	4	3	3	3	4	4
0660-454	Production Planning and Inventory Control	5		3		5						4	
0660-457	Quality Control	4	4		5	4		5	3		4	4	4
0660-458	Design of Experiments	4	3	4		4						4	3
0660-461	Operations Research II	3				3						4	
0660-464	Optimization Methods	4		4		4						3	
0660-471	Engineering Management				4		3	4	4	4	4	3	4
0660-481	Systems Simulation		3	3	5	5		5		3			
0660-489	Special Topics in Management Systems Engineering			4	4			4				4	
0660-496	Industrial Engineering Design			4	4	5	4	4		4		4	
	Weighted Average	**3.8**	**3.6**	**3.6**	**4.5**	**4.1**	**3.5**	**4.3**	**3.8**	**3.8**	**3.8**	**3.9**	**3.6**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0660-461	Operations Research II	The students need more solid background in mathematics to proceed well in this course. However, the learning environment in this course was so interactive. The students have enjoyed the course as it addresses realistic problem solving techniques.
0660-481	Systems Simulation	The batch was not up to the expected level. Poor performance was noticed by the instructors. Students were urged to put more effort, however, as the batch is relatively small (only 18 students), few students could respond well.

Spring semester

Instructors: **13**

Courses: **24**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0660-221	Introduction to Industrial Engineering		H		H	H	H	H		H			
0660-321	Work Design and Measurement	H	H	H					H		H	H	H
0660-321	Work Design and Measurement	H	H	H					H		H	H	H
0660-325	Safety and Health for Engineers		H		H		H	H	H	H	H	H	H
0660-351	Engineering Statistical Analysis	H	H			H						H	H
0660-352	Production Cost Analysis	H				H					H	H	H
0660-372	Project Management and Control	H	H	H	H	H	H	H	H	H	H	H	H
0660-372	Project Management and Control	H	H	H	H	H	H	H	H	H	H	H	H
0660-381	Data and Decision Analysis	H	H	H	H	H		H				H	H
0660-419	Special Topicsin Industrial Engineering												
0660-425	Human Factors Engineering	H	H	H	H	H	H	H	H	H	H	H	H
0660-434	Facilities Planning and Design	H		H		H						H	H
0660-454	Production Planning and Inventory Control	H		H		H						H	H
0660-456	Productivity Improvement Methods	H		H	H	H		H			H	H	H
0660-457	Quality Control	H	H	H	H	H	H	H	H	H	H	H	H
0660-457	Quality Control	H	H	H	H	H	H	H	H	H	H	H	H
0660-461	Operations Research II	H				H						H	H
0660-471	Engineering Management				H		H	H	H	H	H	H	H
0660-481	Systems Simulation		H	H	H	H		H		H		H	H
0660-496	Industrial Engineering Design	H	H	H	H	H	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0660-221	Introduction to Industrial Engineering		4		4	4	5	4	4	4	4	3	4
0660-321	Work Design and Measurement	4	4	4								4	
0660-321	Work Design and Measurement	5	4	4					4		4	4	
0660-325	Safety and Health for Engineers		4		4		4	4	4	4	4	4	
0660-351	Engineering Statistical Analysis	3	3			4					4	3	
0660-352	Production Cost Analysis	3				3			4	3			
0660-372	Project Management and Control						4	4				4	
0660-372	Project Management and Control				5	5	4	5		5		4	
0660-381	Data and Decision Analysis		4			4						3	
0660-419	Special Topicsin Industrial Engineering	5	4	5		3	5	4	5	4	4	4	4
0660-425	Human Factors Engineering				4	4			4	4		4	
0660-434	Facilities Planning and Design	4		4		4	4	4				5	

0660-454	Production Planning and Inventory Control	3	3	3	3	3		3		3		3	3
0660-456	Productivity Improvement Methods			5	5	5						5	
0660-457	Quality Control	3	4		4	4		4	3		4	4	4
0660-457	Quality Control	3	4		4	4		4	3		4	4	4
0660-461	Operations Research II	3				3						3	4
0660-471	Engineering Management				4		4	4	4	4	4	3	4
0660-481	Systems Simulation		3	3	5	5		5		3			
0660-496	Industrial Engineering Design			5	4	5	4	4		4		4	
	Average	**3.6**	**3.7**	**4.1**	**4.2**	**4**	**4.3**	**4.1**	**3.9**	**3.8**	**4**	**3.8**	**3.9**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0660-221	Introduction to Industrial Engineering	• The class discussion extends the students ability to think of examples of the impact of the study. Also, the case-studies depict an application for international companies with different cases (This semester, Nestle cases were chosen as an application), the students acted as managers for this company and proposed solutions for improvement and determined if these solutions are applicable in Kuwait. • Examples of students' choices for project factories: Sara cake, Hassan Optics Company, Smart wood Co.
0660-471	Engineering Management	• The class discussion extends the students ability to think of examples of the impact of the study. Also, the case-studies depict an application for international companies with different cases (Rent-A-Car, PortaKabin, IKEA, Kellogg's, Harrods, Six Sigma applications, Enterprise), the students were acted as managers for this company and proposed solutions for improvement and determined if these solutions are applicable in Kuwait. • Examples of students project: DMAIC applied for Central bank of Kuwait, Control charts applied for IPack Factory, Defect concentration chart applied for Coolex factory

Summer semester

Instructors: **2**

Courses: **2**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0660-471	Engineering Management				H		H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0660-471	Engineering Management				4		4	4	4	4	4	3	4
	Weighted Average	**0**	**0**	**0**	**4**	**0**	**4**	**4**	**4**	**4**	**4**	**3**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0660-471	Engineering Management	• The class discussion extends the students ability to think of examples of the impact of the study. Also, the case-studies depict an application for international companies with different cases (Kellogg's, Harrods), the students were acted as managers for this company and proposed solutions for improvement and determined if these solutions are applicable for local companies. • Examples of students project: DMAIC applied for plastic Industries Co., Fault Tree Analysis applied for Carriage, House of Quality applied for ABYAT.

Mechanical Engineering Program

Fall semester

Instructors: **18**

Courses: **33**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0630-208													
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-304													
0630-311	Theory of Machines	H		M		H		L		M		M	
0630-322	Engineering Thermodynamics II	H		H	L	H	L	L	M	L	L	M	M
0630-341	Materials Science and Metallurgy II												
0630-351	Mechanical Design I												
0630-353	Manufacturing Processes	L		M	M	H		M	L				
0630-353	Manufacturing Processes	L		M	M	H		M	L				M
0630-415	Mechanical Vibrations	H		M		H			M	L	L	M	
0630-415	Mechanical Vibrations	H		M		H			M	L	L	M	M
0630-417	Control of Mechanical Systems	H		M	L	M		L		L		H	
0630-421	Heat Transfer	H		M		H		M				L	
0630-421	Heat Transfer	H		M		H		M				L	
0630-424	Air conditioning and Refrigeration	M		H		M		L	L		M	M	M
0630-451	Mechanical Design II	H		H	L	H	L	M	L	M		M	
0630-475	Thermal Science Lab. II	H	H	M	M	M	L	H			L	M	L
0630-475	Thermal Science Lab. II	H	H	M	M	M	L	H			L	M	L
0630-484	Industrial Safety and Loss Prevention												
0630-208													
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0630-208		4			3	4	3		3		3	3	
0630-241	Materials Science and Metallurgy	3	3	2		2	3		3	3	3	3	
0630-241	Materials Science and Metallurgy	2	3	2	4	2	3		3	3	3	3	
0630-241	Materials Science and Metallurgy	4	3	3		3	3		3	3	3	3	
0630-304		4				3			3	3	3	3	
0630-311	Theory of Machines	2		3		2		3		2		3	
0630-322	Engineering Thermodynamics II	1		2	1	3	3	2	3	3	3	3	3
0630-341	Materials Science and Metallurgy II	4	3	3	4	4	3	4	3	3	3	3	
0630-351	Mechanical Design I	3				2	3	3	3				
0630-353	Manufacturing Processes	4		3	5	4		5	4				
0630-353	Manufacturing Processes	3		3	2	4	4	4	4		4		3

0630-415	Mechanical Vibrations	3		3		3			3	3	4	1	
0630-415	Mechanical Vibrations	3		3		3		2	3	3		3	3
0630-417	Control of Mechanical Systems	3		3	3	3		3		3		4	
0630-421	Heat Transfer	2		3		3		3				3	
0630-421	Heat Transfer	3		3		2		2				3	
0630-424	Air conditioning and Refrigeration	4		4		4		3	3		4	5	4
0630-451	Mechanical Design II	3		2	3	3	2	2	2	3		3	
0630-475	Thermal Science Lab. II	4	4	4	4	3	3	4			3	4	3
0630-475	Thermal Science Lab. II	4	4	4	4	3	3	4			3	4	3
0630-484	Industrial Safety and Loss Prevention	3	4	4		4	4	4		4	3		
	Weighted Average	**2.9**	**3.7**	**3**	**3.4**	**3**	**2.9**	**3.4**	**3.1**	**2.8**	**3.3**	**3.3**	**3.2**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-208		Majority of the students show interest in the subject. It was a pleasure to teach this group of students.
0630-241	Materials Science and Metallurgy	Overall performance of the students was weak. Students Do better in the summer due to continuity of lectures. The weakness was noted in the following: - using basic Calculator for solving Engineering problems; - Basic Chemistry; - Inability to learn logarithmic scale on their own even though they were directed to specific youtube video by khan academy - English Language (speaking, writing and comprehension); - Geometry; - Reading Charts; especially log scales and related charts - Students still lack the basics of engineering sense and deal with the subject by memorizing the concepts without understanding it - Chemical Eng. students should be taking the course earlier and not when at the verge of graduating - Industrial engineering students are less motivated than others - Lab lack depths due to shortage of qualified engineers and technicians in the lab. - Lab Equipment are old and need updating - Small Class was helpfull in improving performance - E-mail was used to contact me in off-hours of the day was helpful
0630-241	Materials Science and Metallurgy	Satisfactory to weak performance. Half (7/15) of the students gave-up, with either W or FA. Of the remaining students, only two students satisfactorily achieved the outcomes of the course. I believe, the rest of the students lack basic fundamentals of math (geometry and trigonometry), science as well as English comprehension.
0630-241	Materials Science and Metallurgy	The performance of students was generally good to very good. I had few students with excellent performance who were eager to learn and ask questions about the subject. Many students performed satisfactorily in exams and quizzes. The number of students with poor performance is more than the previous section I had in Fall 2016. I assigned the course TA to provide

		review sessions before each exam. The TA did an excellent job and the students expressed their opinions that the review sessions were very helpful. The On-line Course System (OCS) was utilized to take on-line quiz on phase diagram (chapters 11). Also, the course website (OCS) included many examples, animations and links to useful materials science websites.
0630-304		Except those students who passed the course with a grade above C, overall class motivation was poor. Because of the lack of enthusiasm, the mini-project was changed to an optional bonus project. A major problem is insufficient language skills which hinders understanding of the problems and cause students to imitate. On the other hand, those students who passed had a good understanding of the subject and achieved all course outcomes. There is a need to acquire and adopt a software such as Minitab. With the use of Minitab and a more efficient textbook, it is possible to cover more material and include some introduction to regression analysis as well.
0630-311	Theory of Machines	Students are weak in Math and Algebra. Many students had difficulties to solve a system of linear equations. Getting the final answer right is not one of their priorities.
0630-322	Engineering Thermodynamics II	1) Most of the students have weak background in Thermodynamics 1. Either they took it a long time ago or they have weak background. 2) Students do not read the textbook. 3) Students weak in English. 4) Some students do not attend the class. 5) about 30% of the class didn't do the project. Few stopped by the office to discuss the project with the instructor.
0630-341	Materials Science and Metallurgy II	The performance of students was generally very good since most of the students had good background from the preliminary course (ME 241 Materials Science & Metallurgy). I had a good number of students with excellent performance who were eager to learn and ask questions about the subject. Many students performed well in exams and quizzes. The number of students with poor performance is very few. There was a term project assigned to students as groups to select a topic on advanced engineering materials (see examples of project report). The On-line Course System (OCS) was utilized for lecture notes, examples, and links to useful materials science videos and websites.
0630-351	Mechanical Design I	Weak background from prerequisite courses
0630-353	Manufacturing Processes	Nona-manufacturing processes and applications can be included in the course objectives.
0630-353	Manufacturing Processes	This section had many highly motivated students who wanted to learn. They were competitive and did well in exams and quizzes. The project required the students to observe real-life manufacturing in local factories. More effort was required to be put in the project.
0630-417	Control of Mechanical Systems	- The use of MATLAB throughout the course was essential in clarifying the mathematical concepts and validating the analytical work. - Visualizing via MATLAB is highly recommended to help students easily understand the control system design. - It is highly mandatory that ME476 is designed well to synchronize with ME415. Otherwise, students in the lab will get exposed to advanced topics without enough knowledge.
0630-421	Heat Transfer	The performance of the students in general was satisfactory. Testing students four times forced the students to study more frequently, which is something very much needed in the heat transfer course. I will continue to use this methodology when i teach this course again. I think changing the text book should

		be investigated. The new edition of the text book included a lot of unneeded material that confuse the students.
0630-421	Heat Transfer	Students were weak in math and physics. They need to improve their writing and communication skills.
0630-451	Mechanical Design II	the student's portfolio include some evidences for the covered outcomes of the course.
0630-421	Heat Transfer	Students were very good in solving the computer assignments and using EES and Matlab. They were involved in class discussion with excellent questions. Some of the students, however, had difficulty handing HW and assignments in time. The design project reveals a lack of practical experience and connection to real engineering problems. Most of the students had difficulty writing their project report and expressing their comments in English for their assignments.
0630-424	Air conditioning and Refrigeration	I used the same way I taught this course before. Student usually like the subject because it relates to the practical side of education. I got them interested in professional societies such as ASHRAE. Student seemed to be interested in the course and I have seen more interactions. I felt content with this group. of course few did not respond as good as I want to. But the overall assessment was positive.
0630-451	Mechanical Design II	Most of the students failed to pass the course. These students are very poor in math, physics, and more importantly finding the final answer. Students seek marks without putting in mind the real value for the final answer. I believe the final answer should have high marks, and students should be educated to get the final answer right. Many students don't believe they can or will get the final answer. I had over 100 problems given to all students through tests and I received less than 10 correct answers.
0630-475	Thermal Science Lab. II	The students worked in groups and learned how to conduct team work. This lab course needs more than one engineer in order to have a supervisor with each group. Overall, the course went smooth and students got the benefit.
0630-475	Thermal Science Lab. II	The students worked in groups and learned how to conduct team work. This lab course needs more than one engineer in order to have a supervisor with each group. Overall, the course went smooth and students got the benefit.
0630-484	Industrial Safety and Loss Prevention	The course content was modified to include Hazardous material, Responding to HAZMAT accidents , & Accident investigation tools & practices All students learned the procedures to handle real life accidents (see question 1 Final exam)

Spring semester

Instructors: **21**

Courses: **39**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-259	Introduction to Design	M		H	H	M	H	H	M	M	L	H	
0630-259	Introduction to Design	M		H	H	M	H	H	M	M	L	H	
0630-311	Theory of Machines	H		M		H		L		M		M	
0630-311	Theory of Machines	H		M		H		L		M		M	
0630-311	Theory of Machines	H		M		H		L		M		M	
0630-318	System Dynamics	H		L		H		L				M	
0630-351	Mechanical Design I												
0630-351	Mechanical Design I												
0630-351	Mechanical Design I												
0630-353	Manufacturing Processes	L		M	M	H		M	L				M
0630-353	Manufacturing Processes	L		M	M	H		M	L				
0630-373	Mechanical Engineering Fundamentals Laboratory	H	H		M	L		H				M	
0630-373	Mechanical Engineering Fundamentals Laboratory	H	H		M	L		H				M	
0630-415	Mechanical Vibrations	H		M		H			M	L	L	M	
0630-415	Mechanical Vibrations	H		M		H			M	L	L	M	M
0630-417	Control of Mechanical Systems	H		M	L	M		L		L		H	L
0630-421	Heat Transfer	H		M		H		M				L	
0630-445	Mechanical Properties of Materials	H	M	L		M		L	L	L	L		
0630-447	Corrosion Control of Engineering Materials	M		M	L	H	M	L	M	L	L	M	M
0630-451	Mechanical Design II	H		H	L	H	L	M	L	M		M	
0630-451	Mechanical Design II	H		H	L	H	L	M	L	M		M	
0630-459	Engineering Design	M	H	H	H	H	M	H	M	M	M	H	
0630-459	Engineering Design	M	H	H	H	H	M	H	M	M	M	H	
0630-483	Biomechanics												
0630-488	Thermal Systems Design												

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0630-241	Materials Science and Metallurgy	4	4			3	4		3	4	4	4	
0630-241	Materials Science and Metallurgy	4	3	3		3	3		3	3	3	3	
0630-241	Materials Science and Metallurgy	3	3	2		2	3		3	3	3	3	
0630-241	Materials Science and Metallurgy	2	3	2	4	3	3		3	3	3	3	

0630-241	Materials Science and Metallurgy	3	2			3	3		3	3	3	2	
0630-259	Introduction to Design	3		3	4	3	3	3	4	4	4	3	
0630-259	Introduction to Design	3		2	3	2	3	3	3	3	3	2	
0630-311	Theory of Machines	2		3		2		3		2		3	
0630-311	Theory of Machines	3		3		3		3		2		2	
0630-311	Theory of Machines	3		3		3		3		3		3	
0630-318	System Dynamics	3		3		3		3				1	
0630-351	Mechanical Design I	3		2		2	2		3				
0630-351	Mechanical Design I	4		3		4	4		4	3	3	4	
0630-351	Mechanical Design I	3		3		2	3		3	3		3	
0630-353	Manufacturing Processes	3		3	4	4	4	4	4		4		3
0630-353	Manufacturing Processes	4		3	4								
0630-373	Mechanical Engineering Fundamentals Laboratory	4	4		4	3		4				3	
0630-373	Mechanical Engineering Fundamentals Laboratory	5	4		4	4		4				4	
0630-415	Mechanical Vibrations	4		3		4			4	3	4	2	
0630-415	Mechanical Vibrations	2		3		2					4	2	
0630-417	Control of Mechanical Systems	3		3	3	3		3		3		4	4
0630-421	Heat Transfer	3		3		3		4				4	
0630-445	Mechanical Properties of Materials	4	3	3	3	4		3	3	3	3		
0630-447	Corrosion Control of Engineering Materials	3		3	4	3	3	4	3	3	3	4	
0630-451	Mechanical Design II	3		3	3	3	3	4	3	4		3	
0630-451	Mechanical Design II	3		2	3	3	2	2	2	3		3	
0630-459	Engineering Design	4	5	4	5	5	3	5	4	5	4	5	
0630-459	Engineering Design	3	4	4	3	4	3	5	3	4	4	5	
0630-483	Biomechanics	5	4	3	5	5	4		3	3	4	5	
0630-488	Thermal Systems Design	5		4		5	4	4	4	4	4	5	
	Weighted Average	**3.2**	**3.8**	**3**	**3.8**	**3.1**	**3**	**3.7**	**3.3**	**3.3**	**3.5**	**3.2**	

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	In general, the students had good performance throughout the semester. I had a good number of students with excellent performance who were eager to learn and ask questions about the subject. Many students performed satisfactorily in exams and quizzes. The number of students with poor performance is normal. I assigned the course TA to provide review sessions before each exam. The TA did an excellent job and the students expressed their opinions that the review sessions were very helpful. The On-line Course System (OCS) was utilized to take on-line quiz on phase diagram (chapters 11). Also, the course website (OCS) included

		many examples, animations and links to useful materials science websites.
0630-241	Materials Science and Metallurgy	Overall performance of the students was weak. Students Do better in the summer due to continuity of lectures. The weakness was noted in the following: - using basic Calculator for solving Engineering problems; - Basic Chemistry; - Inability to learn logarithmic scale on their own even though they were directed to specific youtube video by khan academy - English Language (speaking, writing and comprehension); - Geometry; - Reading Charts; especially log scales and related charts - Students still lack the basics of engineering sense and deal with the subject by memorizing the concepts without understanding it - Chemical Eng. students should be taking the course earlier and not when at the verge of graduating - Industrial engineering students are less motivated than others - Lab lack depths due to shortage of qualified engineers and technicians in the lab. - Lab Equipment are old and need updating - Small Class was helpfull in improving performance - E-mail was used to contact me in off-hours of the day was helpful
0630-241	Materials Science and Metallurgy	This ICEF includes two sections, 241/51 &52. The performance of the students in general was very weak. More than half (23/44) of them gave-up, with either W, FA and F (11 F). Of the remaining students, I believe only eight students satisfactorily achieved the outcomes of the course. Their attendance in class was irregular causing poor performance in tests. Many of them are poor in English with the consequence that they were not able to benefit from the textbook or my lectures. Also, they had hard time understanding the exam questions. Very rarely they used my OH for help. There are several reasons for this, which include lack of motivation, receiving help from other sources, etc. I believe, we should introduce a foundation year at the College where the students are taught fundamentals entirely in English. Then they must attained minimum requirements for entrance into their Majors.
0630-241	Materials Science and Metallurgy	Very weak abilities to read the textbook and understand the concepts of materials science. Most of the exam concept questions were poorly answered.
0630-259	Introduction to Design	The students performance in this course is between good and very good. The most important concern I have in this course is the student lack the ability to write a good English in his own words. I tried directly and indirectly to force them to be able to utilize the internet to read many articles that may help them understand how technical writing is done and reflected this on his/her assignments and course project. I think the main and obvious reason for this is their English language skill is weak.
0630-259	Introduction to Design	The overall performance of this section was weak. The students were not enthusiastic about the course subject. The majority of the class students clearly had a time management problem. Also, the most important concern I have in this course is the student lack the ability to write a good English using his own words. I tried directly and indirectly to force them to be able to utilize the internet to read many articles that may help them understand how technical writing is done and reflected this on his/her assignments and course project. I think the main and obvious reason for this is their English language proficiency and skill are weak.
0630-311	Theory of Machines	Students are weak in Math and Algebra. Many students had difficulties to solve a system of linear equations. Getting the final answer right is not one of their priorities.
0630-351	Mechanical Design I	Students lack the basic understanding of load analysis. Exams upon request 1) Assisting staff: The department is still very short in qualified teaching assistants. Teaching assistants are overloaded with courses; according to their job description they are required to

		teach five courses, and on average they teach 7 courses (21 credits). Teaching five (20-students on average) courses that are usually assigned one homework set (five-problems) a week means that TAs are required to grade 500 problems a week, which causes them not to return Home-Exam problems to students on time nor pay careful attention while grading. Teaching five courses per semester is affecting the quality of work. Furthermore, TAs do not have enough time to answer all student's questions. 2) Students: Students have a problem in drawing FBD. Students always claim that they are weak in mechanics of materials, yet this is just an excuse. The complete basic of mechanics of materials are reviewed to students during a period of 4 weeks, yet they are failing to understand these basics. Students are unable to recognize that stress is a point value. Most students do not solve Home-exams for practice, but for grade. Students have two major problems, 1) Copying and 2) Seriousness (students are not serious)
0630-351	Mechanical Design I	Overall, the students were of the range from satisfactory to weak.
0630-353	Manufacturing Processes	This was a 2 pm class -- I felt that students were not active during class during this afternoon time slot. However, many performed well in exams and quizzes. The factory tour was very useful in showing them real-life application of what they learned and many students became more motivated after the tour. Overall, it was a good section.
0630-353	Manufacturing Processes	Nona-manufacturing processes and applications can be included in the course objectives.
0630-373	Mechanical Engineering Fundamentals Laboratory	A good batch of students. They faced problems with Maths and using the Word and Excel program, finding Average and Standard deviation. They were weak in English language. Some students were weak in browsing the internet for collecting the necessary data for compiling the reports.
0630-373	Mechanical Engineering Fundamentals Laboratory	In general, the students were good and enthusiastic. Most of them were excellent in using Microsoft word and excel to complete their reports. They were able to use Internet effectively to collect the necessary data for the formal reports. Some of the students faced a problem in the uncertainty analysis. Some of them were not good enough at English. More attention should be given to enhance the students skills in English language.
0630-415	Mechanical Vibrations	student need more practice in math. Some student were careless in doing a matlab problems.
0630-417	Control of Mechanical Systems	The overall performance of the students was satisfactory and this is reflected in their final grades (GPA 1.83). Students performance in applying Matlab and Simulink was very good. Students performance was satisfactory in the project. Students who took the control lab at the same time seemed to understand better the experimental issues related to control. Attendence was high.
0630-421	Heat Transfer	The students performed very well in the projects. Excellent performance in Quizzes and Exams.
0630-445	Mechanical Properties of Materials	The overall performance was very good. Performance in exams, quizzes and assignment are good-to-very good. Some of the students were eager to learn topics related to mechanical failures. The objective of the project was to provide an opportunity for the students to work independently on some major failure cases related to failure of machine element in service. Examples of the assigned failure cases are fracture of ball valve for sub-sea oil piping line, and creep failure of turbine blade in aircraft engine. The On-line Course System (OCS) was utilized and the course website contains lecture notes, assignments, and project announcements.
0630-447	Corrosion Control of Engineering Materials	The overall performance was satisfactory. Performance in exams and quizzes are above average.

0630-451	Mechanical Design II	The need to reach the final answer is almost missing. Most of the students try to get as many points as possible but never care about the final answer. This is not acceptable for engineering students where final answer is the most important part of any design. Most of the students are not good in programming. They don't feel the need to have good programming skills.
0630-451	Mechanical Design II	the student's portfolio is include the evidences of the covered outcomes of the course.
0630-459	Engineering Design	This course required time and effort to complete and perfect the design. Implement CAD analysis is very important and necessary step in the design. Students need access to reliable and state of the art workshop with some well-trained technician. In addition, soft design engineering lab (consists of a decent permanent workplace, advanced computers, state of the art software, 3D printers, laser cutters, ... etc) is necessary to complete and perfect the design and prototype manufacturing within the allowed time.
0630-459	Engineering Design	This course required time and effort to complete and perfect the design. Implement CAD analysis is very important and necessary step in the design. Students need access to reliable and state of the art workshop with some well-trained technician. In addition, soft design engineering lab (consists of a decent permanent workplace, advanced computers, state of the art software, 3D printers, laser cutters, ... etc) is necessary to complete and perfect the design and prototype manufacturing within the allowed time.
0630-488	Thermal Systems Design	The course was beneficial for senior students since it include applications from different topics in thermal sciences. Also, it integrate these topics with modeling, simulation, and optimization methods. The course needs a lot of work in the homework and assignments, and this was the setback in the student performance. However, most of the students did well in the exams. I really support teaching this course in the future. This course had a low number of students, and most of them are very good students. This was reflected in the high average of the grades.

Summer semester

Instructors: **14**

Courses: **19**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-241	Materials Science and Metallurgy	H	L			M	L		L	L	L	L	
0630-311	Theory of Machines	H		M		H		L		M		M	
0630-318	System Dynamics	H		L		H		L				M	
0630-351	Mechanical Design I												
0630-353	Manufacturing Processes	H		M	M	H	L	H		M	L	H	
0630-353	Manufacturing Processes	L		M	M	H		M	L				
0630-373	Mechanical Engineering Fundamentals Laboratory	H	H		M	L		H				M	
0630-373	Mechanical Engineering Fundamentals Laboratory	H	H		M	L		H				M	
0630-451	Mechanical Design II	H		H	L	H	L	M	L	M		M	
0630-475	Thermal Science Lab. II	H	H	M	M	M	L	H			L	M	L
0630-475	Thermal Science Lab. II	H	H	M	M	M	L	H			L	M	L

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
0630-241	Materials Science and Metallurgy	4	3	3		4	3		3	3	3	3	
0630-241	Materials Science and Metallurgy	3	3	2		2	3		3	3	3	3	
0630-311	Theory of Machines	2		3		2		3		2		3	
0630-318	System Dynamics	3		3		4		3				4	
0630-351	Mechanical Design I	3		3		2	3		3	3		3	
0630-353	Manufacturing Processes	4		3	3	3	5	3		3	4	4	
0630-353	Manufacturing Processes	3		4	3	3		3	4				
0630-373	Mechanical Engineering Fundamentals Laboratory	3	3		4	3		4				4	
0630-373	Mechanical Engineering Fundamentals Laboratory	3	3		4	3		4				4	
0630-451	Mechanical Design II	3		3	3	3	2	2	2	3		3	
0630-475	Thermal Science Lab. II	4	4	4	4	3	3	4			3	4	3
0630-475	Thermal Science Lab. II	4	4	4	4	3	3	4			3	4	3
	Weighted Average	**3.3**	**3.4**	**3.4**	**3.6**	**3**	**3.2**	**3.5**	**3**	**2.8**	**3.2**	**3.7**	**3**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	In general, the students had a very-good performance throughout the semester. I had a good number of students with excellent performance who were eager to learn and ask questions about the subject. Many students performed satisfactorily in exams and quizzes. The number of students with poor performance is few. I assigned the course TA to provide review sessions before each exam. Also, a review session was given by the instructor before the final exam. The new On-line Course System (OCS), http://ocs.eng.ku.edu.kw/, was utilized to take on-line quiz on phase diagram, phase transformation and thermal processing of metals (ch.11, ch.12, and ch.17). Also, the OCS website included many examples, animations and links to useful materials science websites.
0630-241	Materials Science and Metallurgy	Overall performance of the students was better than usual. Course content and examples was coordinated among faculty teaching the course. Students Do better in the summer due to continuity of lectures. The weakness was noted in the following: - using basic Calculator for solving Engineering problems; - Basic Chemistry; - Inability to learn logarithmic scale on their own even though they were directed to specific youtube video by khan academy - English Language (speaking, writing and comprehension); - Geometry; - Reading Charts; especially log scales and related charts - Students still lack the basics of engineering sense and deal with the subject by memorizing the concepts without understanding it - Chemical Eng. students should be taking the course earlier and not when at the verge of graduating - Industrial engineering students are less motivated than others - Lab lack depths due to shortage of qualified engineers and technicians in the lab. - Lab Equipment are old and need updating - Small Class was helpfull in improving performance - E-mail was used to contact me in off-hours of the day was helpful - Use of new OCS was nice - Video proven to be helpfull
0630-311	Theory of Machines	Students are weak in Math and Algebra. Many students had difficulties to solve a system of linear equations. Getting the final answer right is not one of their priorities.
0630-318	System Dynamics	I stressed attendance of all lectures in this course during the first few lectures and most students never missed a lecture as I believe that this will help students to understand the flow of course material in a better way. I also encouraged discussions of the basic concept of each lecture to increase the interest of the students in the subject and to motivate them to read the subject of each lecture before coming to class. I also informed the students about my expectation from them on the method of solving problems in exams as I stress proper drawing and sketching of the each problem as it helps in solving the problem followed by stating the basic physical laws used for each system. Students practiced this approach in the homework sets that were assigned. Although I did not collect the homework problems, students know that the exam problems will be from these problems or very close and it seemed that the majority attempted solving these problems. The performance of the students in this class was satisfactory to me and is average compared to other sections I taught in the past.

0630-351	Mechanical Design I	Overall, the students were of the range from satisfactory to weak.
0630-353	Manufacturing Processes	
0630-353	Manufacturing Processes	The students performance in this course is about average. The most important concern I have which is repeated in many of the previous courses is that the student lack the incentives or ability to read the course textbook. I tried directly and indirectly to force them to read the textbook but the percentage whom read the book and reflected on his/her quizzes and exams score is relatively low. I think the main reason for this is their English language skill is weak (as usual).
0630-373	Mechanical Engineering Fundamentals Laboratory	The batch of students this semester were good.
0630-373	Mechanical Engineering Fundamentals Laboratory	The batch of students this semester were good.
0630-475	Thermal Science Lab. II	The students worked in groups and learned how to conduct team work. This lab course needs more than one engineer in order to have a supervisor with each group. Overall, the course went smooth and students got the benefit.
0630-475	Thermal Science Lab. II	The students worked in groups and learned how to conduct team work. This lab course needs more than one engineer in order to have a supervisor with each group. Overall, the course went smooth and students got the benefit.

Petroleum Engineering Program

Fall semester

Instructors: **11**

Courses: **29**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0650-												
0650-221	Reservoir Rock Properties	M				M				L		L
0650-322	Reservoir Rock Laboratory	L	H		M		M	H				
0650-324	Reservoir Engineering	H				H	L			M		M
0650-333	PVT Laboratory	L	H		M		M	H				
0650-333	PVT Laboratory	L	H		M		M	H				
0650-333	PVT Laboratory	L	H		M		M	H				
0650-341	Oil Well Drilling and Completion	M		L		M			M	M		
0650-354	Well Logging	M	L	L	L	M	L	L	H	M	M	H
0650-355	Well Logging Laboratory	L	L	M	M	M	M	H	M	L		
0650-411	Petroleum Production Engineering	H		H	M	H	L	H	M	L	L	H
0650-425	Natural Gas Reservoir Engineering	H				M		H	L	L		H
0650-425	Natural Gas Reservoir Engineering	H				M		H	L	L		H
0650-427	Secondary Recovery	H	M	M	H	H	H	M	H	M	M	H
0650-432	Well Testing	H	H			M	H	M		M		H
0650-435	Production Equipment Design	H		H	M	H		H	L	H		M
0650-435	Production Equipment Design	H		H	M	H		H	L	H		M
0650-437	Numerical Methods in Petroleum Engineering	H				L		M		M		M
0650-437	Numerical Methods in Petroleum Engineering	H				L		M		M		M
0650-449	Petroleum Economics	M			L	M	L	M	H	H	H	H
0650-450	Industrial Training	H		M	H	H	H	H	H	H	H	H
0650-469	Practical Advances in Drilling Engineering											
0650-485	Introduction to Geostatistics											
0650-496	Well Design	H	H	H	H	H	H	H	H	H	H	H
0650-496	Well Design	H	H	H	H	H	H	H	H	H	H	H
0650-496	Well Design	H	H	H	H	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0650-		3	3	3	3	3	4	2	3	3	4	4
0650-221	Reservoir Rock Properties	3				3				2		3
0650-322	Reservoir Rock Laboratory	3	4		4		4	3				
0650-324	Reservoir Engineering	5	5	4	4	5	4	4	4	4	4	4
0650-333	PVT Laboratory	5	4		4		5	5				5
0650-333	PVT Laboratory	4	4		4		5	4				5
0650-333	PVT Laboratory	4	3		5		4	4				5
0650-341	Oil Well Drilling and Completion	5	4	4		5	4	4	5	4	5	4
0650-354	Well Logging	4	3	3		3	3	3	4	3	4	4

0650-355	Well Logging Laboratory	4	4	3	3	3	3	4	3	3		4
0650-411	Petroleum Production Engineering	4		4	5	4	4	4	4	3		5
0650-425	Natural Gas Reservoir Engineering	3				3		4	3	3		2
0650-425	Natural Gas Reservoir Engineering											
0650-427	Secondary Recovery	5	4	3	4	4	4	3	4	4	4	4
0650-432	Well Testing	5	5	4	4	5	4	4	4	4	4	4
0650-435	Production Equipment Design	5		4	5	4		4	3	4		5
0650-435	Production Equipment Design	4		5	5	5		5	4	3		5
0650-437	Numerical Methods in Petroleum Engineering	2	3	2	1	4	1	3	4	3	2	3
0650-437	Numerical Methods in Petroleum Engineering	4	4	4	4	3	4	3	4	2	4	3
0650-449	Petroleum Economics	3	5	4	3	4	4	4	4	4	4	4
0650-450	Industrial Training	4		4	4	3	4	3	4	3	3	4
0650-469	Practical Advances in Drilling Engineering	5	4	5	5	5	4	5	4	5	5	5
0650-485	Introduction to Geostatistics	4	3	3	4	4	3	3	4	3	4	4
0650-496	Well Design	5	5	5	5	5	5	5	5	5	4	5
0650-496	Well Design	4	4	4	5	5	4	4	4	4	5	5
0650-496	Well Design	5	4	4	5	5	5	5	5			5
	Weighted Average	**4.1**	**4.1**	**4**	**4.4**	**4.2**	**4.2**	**4**	**4.1**	**3.6**	**4**	**4.1**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-		students are enjoying working to build their projects. some soft skills like presentation need to be improved.
0650-221	Reservoir Rock Properties	student are getting low grades in homeworks. text book is not available due to bookshop delay and ordering of books by previous instructors. Students need more exposure to units conversion. some students are not taking the lab with the course rather they delay it for one semester.
0650-322	Reservoir Rock Laboratory	New lab equipments are needed. Also new experiment like sieve analysis. Lab manual need to be updated.
0650-341	Oil Well Drilling and Completion	The Course should be extended, not enough time to cover all the aspect of drilling and well completion
0650-435	Production Equipment Design	The syllabus of the course should be revised to give more emphasis on upstream production equipment.
0650-449	Petroleum Economics	The course is an elective now and we might but more emphasis on risk analysis and therefore this will needs understanding of probability and statistics concept. I suggest that Probability (600- 304) course should be a prerequisite to petroleum economics PE 449.
0650-469	Practical Advances in Drilling Engineering	PE469 is an excellent course that really complements PE341 drilling and well completion course.

Spring semester

Instructors: **12**

Courses: **32**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0650-210	Introduction to Petroleum Engineering	L					L		L			
0650-221	Reservoir Rock Properties	M				M				L		L
0650-251	Introduction to Design	H	H	H	H	H	H	H	M	M	L	L
0650-301	Fundamentals of Petroleum Engineering											
0650-301	Fundamentals of Petroleum Engineering											
0650-304		M				M						
0650-323	Phase Behavior of Reservoir Fluids	H			L	H	M		L			M
0650-324	Reservoir Engineering	H				H	L			M		M
0650-333	PVT Laboratory	L	H		M		M	H				
0650-333	PVT Laboratory	L	H		M		M	H				
0650-333	PVT Laboratory	L	H		M		M	H				
0650-341	Oil Well Drilling and Completion	M		L		M			M	M		
0650-342	Mud and Cement Laboratory	L	H		M		M	H				
0650-342	Mud and Cement Laboratory	L	H		M		M	H				
0650-352	Subsurface Mapping	L	L		M		M	H				
0650-354	Well Logging	M	L	L	L	M	L	L	H	M	M	H
0650-355	Well Logging Laboratory	L	L	M	M	M	M	H	M	L		
0650-355	Well Logging Laboratory	L	L	M	M	M	M	H	M	L		
0650-411	Petroleum Production Engineering	H		H	M	H	L	H	M	L	L	H
0650-425	Natural Gas Reservoir Engineering	H				M		H	L	L		H
0650-427	Secondary Recovery	H	M	M	H	H	H	M	H	M	M	H
0650-432	Well Testing	H	H			M	H	M		M		H
0650-432	Well Testing	H	H			M	H	M		M		H
0650-435	Production Equipment Design	H		H	M	H		H	L	H		M
0650-437	Numerical Methods in Petroleum Engineering	H				L		M		M		M
0650-442	Industrial Safety for Oil Field Operations											
0650-450	Industrial Training	H		M	H	H	H	H	H	H	H	H
0650-496	Well Design	H	H	H	H	H	H	H	H	H	H	H
0650-496	Well Design	H	H	H	H	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0650-210	Introduction to Petroleum Engineering	4	4	5		5	4	4	5	4	5	4
0650-221	Reservoir Rock Properties	4				3				3		4
0650-251	Introduction to Design	3	3	3	3	3	4	2	3	3	4	4
0650-301	Fundamentals of Petroleum Engineering	5				4					4	
0650-301	Fundamentals of Petroleum Engineering	4	4	5	3	5	4	4	5	4	5	4

0650-304		3				3						
0650-323	Phase Behavior of Reservoir Fluids	2			3	1	4		3			1
0650-324	Reservoir Engineering	3				2	3			2		3
0650-333	PVT Laboratory	4	4		4		4	4				5
0650-333	PVT Laboratory	4	4		3		4	3				5
0650-333	PVT Laboratory	4	3		3		4	3				5
0650-341	Oil Well Drilling and Completion	4		5		5			4	3		
0650-342	Mud and Cement Laboratory	3	5		5		3	5				
0650-342	Mud and Cement Laboratory	3	5		5		3	5				
0650-352	Subsurface Mapping	4	3		4		3	4				
0650-354	Well Logging	3	3	3	3	3	3	3	3	3	3	3
0650-355	Well Logging Laboratory	2	2	3	4	2	3	3	3	3		
0650-355	Well Logging Laboratory	2	2	3	4	2	3	3	3	3		
0650-411	Petroleum Production Engineering	4		4	5	4	4	4	4	3		5
0650-425	Natural Gas Reservoir Engineering	3				3		3	3	3		3
0650-427	Secondary Recovery	5	4	3	4	4	4	3	4	4	4	4
0650-432	Well Testing	5	5	4	4	5	4	4	4	4	4	4
0650-432	Well Testing	4		4	4	4		4	4	4		4
0650-435	Production Equipment Design	4		5	5	5		5	4	3		5
0650-437	Numerical Methods in Petroleum Engineering	4				4		4		4		4
0650-442	Industrial Safety for Oil Field Operations		5	5	5		5	5	5		5	5
0650-450	Industrial Training	5		3	5	4	4	4	3	4	3	5
0650-496	Well Design	5	5	5	5	5	5	5	5	5	4	5
0650-496	Well Design	5	5	5	5	5	5	5	5			5
	Weighted Average	**3.8**	**4.1**	**3.9**	**4.2**	**3.5**	**3.9**	**3.8**	**3.8**	**3.5**	**3.5**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-251	Introduction to Design	students are enjoying working to build their projects. some soft skills like presentation need to be improved.
0650-323	Phase Behavior of Reservoir Fluids	Most students have weak academic background and some of them show no interest in learning.
0650-324	Reservoir Engineering	This course is the only required reservoir engineering course. The students should exert a lot of effort to comprehend the course and carry the acquired knowledge through their academic career and to the workplace. The prerequisites of this course are very important. To make most benefit of this class, students should have excellent understanding of rock properties and phase behavior of petroleum fluids. I recommend that this course should be

		given a higher number, i.e., 400 level, so that the students will be more academically prepared to comprehend the material.
0650-341	Oil Well Drilling and Completion	The course utilizes basic design element. Most student lacks using spreadsheet software which is needed in plotting and conducting basic regression analysis (rheological models).
0650-437	Numerical Methods in Petroleum Engineering	Students show high ability to engage in life-long learning

Summer semester

Instructors: **10**

Courses: **16**

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0650-221	Reservoir Rock Properties	M				M				L		L
0650-221	Reservoir Rock Properties	M				M				L		L
0650-221	Reservoir Rock Properties	M				M				L		L
0650-322	Reservoir Rock Laboratory	L	H		M		M	H				
0650-324	Reservoir Engineering	H				H	L			M		M
0650-341	Oil Well Drilling and Completion	M		L		M			M	M		
0650-342	Mud and Cement Laboratory	L	H		M		M	H				
0650-342	Mud and Cement Laboratory	L	H		M		M	H				
0650-354	Well Logging	M	L	L	L	M	L	L	H	M	M	H
0650-355	Well Logging Laboratory	L	L	M	M	M	M	H	M	L		
0650-411	Petroleum Production Engineering	H		H	M	H	L	H	M	L	L	H
0650-425	Natural Gas Reservoir Engineering	H				M		H	L	L		H
0650-427	Secondary Recovery	H	M	M	H	H	H	M	H	M	M	H
0650-450	Industrial Training	H		M	H	H	H	H	H	H	H	H
0650-467	Advanced Well Control Operations											

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0650-221	Reservoir Rock Properties	3				3				2		3
0650-221	Reservoir Rock Properties	4				3				3		4
0650-221	Reservoir Rock Properties	4				3				3		3
0650-322	Reservoir Rock Laboratory	3	4		4		4	3				
0650-324	Reservoir Engineering	5	5	4	4	5	4	4	4	4	4	4
0650-341	Oil Well Drilling and Completion	4		5		5			4	3		
0650-342	Mud and Cement Laboratory	3	5		5		3	5				
0650-342	Mud and Cement Laboratory	3	5		5		3	5				
0650-354	Well Logging	4	3	3	3	4	3	4	4	4	3	3
0650-355	Well Logging Laboratory	4	4	3	4	3	3	3	3	3		

0650-411	Petroleum Production Engineering	4		4	5	4	4	4	4	3		5
0650-425	Natural Gas Reservoir Engineering	1				2		3	3	3		3
0650-427	Secondary Recovery	5	4	3	4	4	4	3	4	4	4	4
0650-450	Industrial Training	5		3	5	4	4	4	3	4	3	5
0650-467	Advanced Well Control Operations	5	5	3	3	5	3	4	3	4	5	5
	Weighted Average	**3.8**	**4.4**	**3.5**	**4.5**	**3.7**	**3.6**	**3.8**	**3.6**	**3.5**	**3.3**	**3.9**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-221	Reservoir Rock Properties	student are getting low grades in homeworks. text book is not available due to bookshop delay and ordering of books by previous instructors. Students need more exposure to units conversion. some students are not taking the lab with the course rather they delay it for one semester.
0650-322	Reservoir Rock Laboratory	New lab equipments are needed. Also new experiment like sieve analysis. Lab manual need to be updated.
0650-341	Oil Well Drilling and Completion	The course utilizes basic design element. Most student lacks using spreadsheet software which is needed in plotting and conducting basic regression analysis (rheological models).
0650-425	Natural Gas Reservoir Engineering	Students are week in fundamentals of phase and rock properties.
0650-467	Advanced Well Control Operations	PE467 "Advance Well Control Operations" is an excellent course that teaches students Well control operations thoroughly. Students who take this course always scores the highest in the IADC and IWCF well control certificate exams.

Core Engineering Courses

Fall semester

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0600-200	Computer Programming for Engineers					L						H
0600-202	Statics	M				M		M	M			
0600-202	Statics	M				M		M	M			
0600-202	Statics	M				M		M	M			
0600-203	Dynamics	H				H						
0600-203	Dynamics	H				H						
0600-203	Dynamics	H				H						
0600-204	Strength of Materials	H		M		M		L	L			
0600-205	Electrical Engineering Fundamentals	H				H						
0600-208	Engineering Thermodynamics	H				H	L		M			L
0600-208	Engineering Thermodynamics	H				H	L		M			L
0600-208	Engineering Thermodynamics	H				H	L		M			L
0600-209	Engineering Economy	M		M		M			H	M	H	M
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	M		M		M			H	M	H	M
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	M							M		M	M
0600-209	Engineering Economy	H				H			H		H	H
0600-304	Engineering Probability and Statistics	H	M									
0600-304	Engineering Probability and Statistics	H				H			M	M	M	M
0600-304	Engineering Probability and Statistics	H				H			M	M	M	M
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	H				H			M	M	M	
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H			M	H						H
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H			M	H						
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H			M	H						H

0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H			L	H						H
0600-308	Numerical Methods in Engineering	H				M						H
0600-308	Numerical Methods in Engineering	H				M						H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0600-200	Computer Programming for Engineers					5						4
0600-202	Statics	3				3		1				
0600-202	Statics	3				2		3				
0600-202	Statics	4				4		3	3			
0600-203	Dynamics	3				3						
0600-203	Dynamics	3				3						
0600-203	Dynamics	2				2						
0600-204	Strength of Materials	4		3		3		2	2			
0600-205	Electrical Engineering Fundamentals	3				3						
0600-208	Engineering Thermodynamics	3				3	4		3			3
0600-208	Engineering Thermodynamics	3				3	4		3			3
0600-208	Engineering Thermodynamics	4				4	3		3			3
0600-209	Engineering Economy	5		4		4			5	4	4	5
0600-209	Engineering Economy	4				4			4		4	4
0600-209	Engineering Economy	4				4			4		4	4
0600-209	Engineering Economy	3				3			3		3	3
0600-209	Engineering Economy	3				3			3		3	3
0600-209	Engineering Economy	4		3		4			4	4	4	4
0600-209	Engineering Economy	4				4						4
0600-209	Engineering Economy	4				4						4
0600-209	Engineering Economy	3				4			4		4	4
0600-209	Engineering Economy	4		3		4	3	3	3	3	3	4
0600-304	Engineering Probability and Statistics	3	3									
0600-304	Engineering Probability and Statistics	4				3			3	3	3	5
0600-304	Engineering Probability and Statistics	5				5			4	3	4	5
0600-304	Engineering Probability and Statistics	3				3						
0600-304	Engineering Probability and Statistics	2				2						
0600-304	Engineering Probability and Statistics	4				5						
0600-304	Engineering Probability and Statistics	4				4			4	4	4	
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4			3	4						4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3			1	3						2
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4			3	4						4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3								4		4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4			3	4						4

0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4				4						4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4				4						3
0600-308	Numerical Methods in Engineering	3				3						3
0600-308	Numerical Methods in Engineering	2				2						3
	Weighted Average	**3.5**	**3**	**3.3**	**3**	**3.5**	**3.7**	**2.3**	**3.5**	**3.6**	**3.6**	**3.8**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-202	Statics	(1)- Students have a very weak background in engineering graphics and to-scale sketching. Students are not willing to practice their motor skills. (2)- Student outcome 'h' seems to be irrelevant to this course and should be removed. (3)- Student outcomes are actually evaluated in this course by taking average of student performance for the students who passed the course in selected problems from quizzes and exams for each outcome. The statistical data indicates that outcomes 'a' and 'e' are achieved (average of 76% and 72% respectively) while performance on outcome 'g' was very weak (average 57%). However, the target of 70% of the passing students achieving 70% or more was met for only outcome 'a' and the target of 90% of the students scoring more than 60% was not achieved for any of the outcomes. (4)- Mandatory weekly tutorial sessions are recommended for this course to improve student performance. (5)- Special effort should be focused on improving the graphical presentation skills of the students.
0600-202	Statics	
0600-202	Statics	Suggestions: 1- I recommend assigning a tutorial for ENG202 2- I recommend revising the relevance of outcome g in course assessment as the course is more quantitative and written communication is minimal
0600-203	Dynamics	Students show a good potential towards learning dynamics. However, some students especially who are expected to graduate from civil engineering department do not have that enthusiasm in learning the material. They only need literally just passing the class. Where in opposite, the students who just joined the mechanical engineering department did very well from the beginning to the end of the semester. Those students receive the highest grades comparing with the students from civil engineering department. The idea that planted in the civil engineering students' mind that they will not need Dynamics in either their academic or professional lives keeps the dynamics the last material to study or put an effort on it. Some students also struggled when dealing with symbolic problems. The two major things, which I noticed during teaching the students in the class, that

		they have some problems in algebraic manipulation, differentiation and integration. Their background from the high school is not good enough that qualify them to be in university. The second thing is most of them can solve any problem if you go through it with them. They always need that hints. But in the exam they CANNOT formulate and solve a problem even though it was solved in the class and try to solve it by their own ways. I also tried to give them two group quizzes so they can start knowing how to cooperate with others in solving problems.
0600-208	Engineering Thermodynamics	None
0600-208	Engineering Thermodynamics	None
0600-209	Engineering Economy	Many students were highly motivated and interested in this course. These are the students who achieved high scores in quizzes and exams. A few students did not place much effort and these were the ones who scored low. The course was well-balanced and the students were required to understand the qualitative knowledge as well as gain the ability to solve problems in Engineering Economy.
0600-209	Engineering Economy	Several case problems were discussed in the classroom related to engineering economy and economic evaluation of projects. Students had problems related to language and understanding the problems in detail.
0600-304	Engineering Probability and Statistics	Average Performance in the course.
0600-304	Engineering Probability and Statistics	None
0600-304	Engineering Probability and Statistics	The textbook need to be revised & students do not read their textbook. Students are weak in multiple integration.
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculator; however, most of them have problems in English communication especially reading comprehension, which is very essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculator. However, most of them have problems in English communication especially reading comprehension, which is very essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	There should be a practical application to the usage of statistical software for this course, i.e. a computer tutorial labs in which students should have on hand experience on the application of basic concepts of this course.
0600-304	Engineering Probability and Statistics	The number of students enrolled in each section should not exceed the instructor-to-student ratio (i.e., 25 to 30 students/class). This is to enssure and improve the communication skills between the instructor and the students as well as to meet the requirements assigned by the ABET.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	ENG 307 is a new course and we are currently building up the resources needed. Continuous assessment of the course is essential for quality control and corrective actions. One recommendation is to introduce a

		questionnaire to be completed by the students at the end of the semester.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Teaching Matlab as a programming language within Numerical Methods course hinders the students learning experience, in which the students did not achieve the minimum requirements for the programming aspects, and limited the learning objectives of the Numerical Methods. Based on my experience, TA experience, and students feedback, I strongly recommend separating the programming component from the Numerical Methods course.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Significant effort was dedicated to teach students computer programming using MATLAB software. This limited the time spent to learn various numerical methods.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	- The course is highly important for engineering student. - MATLAB can be further utilized to solve more complex problems in this course if numerical methods are not to be covered in depth. - A clear course syllabus for the classwork and Labwork has to be unified to minimize the discrepancies in course coverage.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	ENG 307 is a new course and we are currently building up the resources needed. Continuous assessment of the course is essential for quality control and corrective actions. One recommendation is to introduce a questionnaire to be completed by the students at the end of the semester.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Focusing on only those numerical methods required in the various engineering courses would free up time to teach students more programming and MATLAB
0600-308	Numerical Methods in Engineering	One of the weakest classes that I taught at Kuwait University. Moreover, based on experience students tend to perform poorer in unified exams.

Spring semester

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0600-102	Workshop	L	H				H		M		L	M
0600-202	Statics	M				M		M	M			
0600-203	Dynamics	H				H						
0600-203	Dynamics	H				H						
0600-203	Dynamics	H				H						
0600-204	Strength of Materials	H		M		M		L	L			
0600-205	Electrical Engineering Fundamentals	H				H						
0600-208	Engineering Thermodynamics	H				H	L		M			L
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H										
0600-209	Engineering Economy	H										
0600-209	Engineering Economy	H							H			
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H				H			H		H	H
0600-209	Engineering Economy	H				H			H		H	H
0600-304	Engineering Probability and Statistics	H				L			L		L	
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	H				H			M	M	M	M
0600-304	Engineering Probability and Statistics	H				H			M	M	M	M
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H			H	H						H
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H			H	H						H
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-308	Numerical Methods in Engineering	H				M						H
0600-308	Numerical Methods in Engineering	H				M						H

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0600-102	Workshop	4	4				3		3		3	3
0600-202	Statics	3				4		2	2			
0600-203	Dynamics	3				3						
0600-203	Dynamics	3				2						
0600-203	Dynamics	3				3						
0600-204	Strength of Materials	4		4		4		4	4			

0600-205	Electrical Engineering Fundamentals	5				5						
0600-208	Engineering Thermodynamics	3				3	4		3			3
0600-209	Engineering Economy	4				4			4		3	5
0600-209	Engineering Economy	5										
0600-209	Engineering Economy	5										
0600-209	Engineering Economy	4							3			
0600-209	Engineering Economy	4				4			4		4	4
0600-209	Engineering Economy	4				4						4
0600-209	Engineering Economy	4				4						4
0600-304	Engineering Probability and Statistics	4				4			3		3	
0600-304	Engineering Probability and Statistics	2				2						
0600-304	Engineering Probability and Statistics	2				2						
0600-304	Engineering Probability and Statistics	4				5						
0600-304	Engineering Probability and Statistics	4				4			3	3	3	3
0600-304	Engineering Probability and Statistics	3				4			4	4	4	4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5			5	5						5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5			5	5						5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4			3	4						4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3	3	3	4	3	2	2	3	3	3	3
0600-308	Numerical Methods in Engineering	3				3						3
0600-308	Numerical Methods in Engineering	5				4						5
	Weighted Average	**3.9**	**4**	**4**	**5**	**3.7**	**3.3**	**2.7**	**3.3**	**3.5**	**3.4**	**4.1**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-102	Workshop	The evaluation summarizes the performance of students in four sections, which I supervised in the spring semester. In average, the students did very well.
0600-202	Statics	- The overall assessment of the outcomes this cycle indicate that the student performance is acceptable in two criteria and unacceptable in two other criteria. - The two criteria that were rated unacceptable are related to course material and chapters taught at the end of the semester. This material is typically covered in a fast pace instruction, which may explain the student performance. It is suggested that more attention and time is allocated to these chapters. - In general, the student attitude this semester is some how more careless than normal. This has also been evident in the course grade average which came less the typical semester. - The carelessness of students and the drop in the course grade average may indicate problems with student admission to Engineering programs.

0600-203	Dynamics	- Class has many top students - Sparing couple of classes for review sessions before exams made a significant difference
0600-203	Dynamics	Students are weak in applying mathematics and general physics. Unfortunately, most of them do not read/study required material and always depend on external resources; paid private tutors! Some students are not serious. Many students use the solution manual to understand how the problem is solved and don not use their knowledge to exercise solving. TAs are not efficient in returning the HE to students on time nor have enough time for questions because they are overloaded with many courses. We need more TAs and they should be assigned less number of courses.
0600-203	Dynamics	The overall performance of the students was satisfactory and this is reflected in their final grades (GPA 2.1). Some students achieved the desired outcomes. The student's background in calculus needs improving.
0600-208	Engineering Thermodynamics	The class performance was satisfactory in general. Most students were seniors from other departments. I suggest making this course as a prerequisite for other courses in all engineering departments.
0600-209	Engineering Economy	I have taught two sections of Engineering Economy this semester (55 and 55D) in the same class. I am reporting the results of the two sections even though they had completely different results. Section 55 had 17 students: 3 F, 1 W and the grades ranges between A- to D. This is due to their irregular class attendance and poor studying skills causing poor performance in tests and quizzes. However, the performance of the two sections is close and the average is between C and C+ where most of the outcomes were achieved.
0600-209	Engineering Economy	I have taught two sections of Engineering Economy this semester (55 and 55D) in the same class. I am reporting the results of the two sections even though they had completely different results. Section 55D had 20 students: 4 F, 1 FA and the grades ranges between A to D. This is due to their irregular class attendance and poor studying skills causing poor performance in tests and quizzes. However, the performance of the two sections is close and the average is between C and C+ where most of the outcomes were achieved.
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculator. However, most of them have problems in English communication especially reading comprehension, which is very essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculator. However, most of them have problems in English communication especially reading comprehension, which is very essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	A unified final exam with other section is applied this semester to ensure a uniform coverage of material within other faculty members. There should be a practical

		application to the usage of statistical software for this course, i.e. a computer tutorial labs in which students should have on hand experience on the application of basic concepts of this course.
0600-304	Engineering Probability and Statistics	A very important course which expose students to diverse engineering concepts in various fields. Students has some issues with the language skills which was sometimes an obstacle in their ability to solve the questions correctly ... Some problems with doing integration and Basic Calculus for double variables
0600-304	Engineering Probability and Statistics	The overall performance was very good. I am really pleased with their performance. Students lack the proper English skills.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	The multidicplinary project was a key tool in relating numerical methods and Matlab to students majors. I observed students increased interest in the course after they worked on this project.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	The multidicplinary project was a key tool in relating numerical methods and Matlab to students majors. I observed students increased interest in the course after they worked on this project.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Material, objectives, and assessment of lab work should be clearly stated and described.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students have to expose more on coding and programming. Most of the student took the calculus, linear algebra, and differential equation long time ago so they struggles in understanding the concept of the numerical method.

Summer semester

RELEVANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0600-202	Statics	M				M		M	M			
0600-203	Dynamics	H				H						
0600-208	Engineering Thermodynamics	H				H	L		M			L
0600-209	Engineering Economy	M		M		M			H	M	H	M
0600-209	Engineering Economy	H				H			H		H	H
0600-304	Engineering Probability and Statistics	M				M						
0600-304	Engineering Probability and Statistics	H				H			M	M	M	M
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING											

PERFORMANCE

Course Number	Course Name	a	b	c	d	e	f	g	h	i	j	k
0600-202	Statics	5				4		4	4			
0600-203	Dynamics	2				1						
0600-208	Engineering Thermodynamics	2				2	3		3			2
0600-209	Engineering Economy	4		3		4			4	4	4	4
0600-209	Engineering Economy	4				4			4		4	4
0600-304	Engineering Probability and Statistics	4				3						
0600-304	Engineering Probability and Statistics	5				5			4	3	4	5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	2								2		2
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3								3		3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4	3	3	5	4		4	3	5	5	5
	Weighted Average	**3.6**	**0**	**3**	**0**	**3.2**	**3**	**4**	**3.8**	**3.5**	**4**	**4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-202	Statics	No
0600-203	Dynamics	One of the worst dynamic courses ever. Students have no interest in the subject. They were not serious in their study, and didn't perform adequately. They had problems in performing simple calculations by their own calculators.
0600-208	Engineering Thermodynamics	The class performance was weak in general. Most students were seniors from other departments. I suggest making

		this course as a prerequisite for other courses in all engineering departments.
0600-209	Engineering Economy	Students fared well given the condensed amount of course material during summer semester setting
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculator. However, most of them have problems in English communication especially reading comprehension, which is very essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	1-The textbook need to be revised & students do not read their textbook. 2-Students are weak in multiple integration. 3-It is better to have a common Tutorial sessions for our students. 4- Materials for Ch.9 "Hypothesis Testing" is a little bit challenging for our students especially "Type II Error".
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	This course is highly dependent on MATLAB programming. Due to the high weight of the Lab work (30% of the total grade), it is mandatory to unify the lab material for all sections.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	The course outcomes achievement rate became higher than my last course due to more intensive application of MATLAB and class/lab synchronization. It is highly recommended to unify the lab activity by providing unified Editable MATLAB files (Template files) which can easily generate lab activities for high number of sections.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students have to expose more on coding and programming. Most of the students took the calculus, linear algebra, and differential equation long time ago so they show some struggle in understanding the concept of the numerical method. I strongly recommend to increase the weight of the midterms grades to 40% and decrease the final weight to 30%. The remaining 30% will be distributed as 15% lab activity, 7.5% MATLAB quizzes, and 7.5% in-class MATLAB written quizzes or MATLAB assignments. The proposed distribution of the grades will make sure that the students who is not strong enough and does not have adequate knowledge in MATLAB will not pass the class.

Online Course Assessment

Fall Semester 2018-2019

March 2019

Introduction

Results of the online course assessment at the College of Engineering and Petroleum conducted during Fall Semester / 2018-2019 are given below. A total response of 169 (46.4% response rate) was recorded from faculty members in the college (Table 1). The responses covered 413 different courses (40.9 % response rate).

Results and Discussion

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to seven student outcomes (1-7).

The new Student Outcomes (1-7) are as follows:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The online assessment form, and the ICEF report were modified to reflect these changes. Therefore, beginning with the Fall Semester of the 2018-19 academic year, assessment is conducted for the new 1-7 student outcomes. Table 2 shows the average rating of student performances in all courses in the college during Fall Semester according to the new 7 student outcomes (2019-2020 cycle ABET updates). The result is presented graphically in Figure 1. As it can be seen the students have achieved the desired outcomes.

Table 3 shows the comparison of the weighted average scores of student performance between individual departmental courses, engineering core courses, and college-wide courses according to the new 7 student outcomes (2019-2020 cycle ABET updates). The results are presented graphically in Figure 2. As it can be seen, most of program averages are between 70%-80% and close to the college average.

The relevance ratings given for each course are used as weights. Since the response rate is somewhat low, and therefore, some courses are not represented in a balanced way, the results may not be valid for some programs.

More detailed results are presented below in the departmental tables, where both relevance ratings and student performance are given for all outcomes. The departments are encouraged to review the results carefully and to make necessary adjustments.

Table 1: Response statistics – Fall Semester

Course Assessment Response Statistics –Fall Semester 2018/19 (March 3, 2019)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	18	44	23	12	52.3	66.7
CIVIL	53	89	35	26	39.3	49.1
COMPUTER *	19	40	37	19	92.5	100.0
ELECTRICAL	37	90	19	8	21.1	21.6
IMSE	14	34	12	5	35.3	35.7
MECHANICAL	40	84	28	14	33.3	35.0
PETROLEUM	15	32	15	7	46.9	46.7
TOTAL	196	413	169	91	40.9	46.4

***Total Faculty 37, total course section 54, only 19 Faculty do assessment got 40 course sections(Dept. policy)**

Table 2: Students performance according to the 1-7 student outcomes – College (Fall 2018-2019)

O	Student Outcomes	5	4	3	2	1	0	Average	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	21	64	47	11	0	28	3.7	3.7
		12%	37%	27%	6%	0%	16%	74%	74%
2	Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	19	46	34	8	1	63	3.7	3.8
		11%	27%	20%	5%	1%	37%	74%	76%
3	Communicate effectively with a range of audiences.	14	30	42	4	0	81	3.6	3.7
		8%	18%	25%	2%	0%	47%	72%	74%
4	Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	12	49	41	0	1	68	3.7	3.8
		7%	29%	24%	0%	1%	40%	74%	76%
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	21	36	21	2	1	90	3.9	4.1
		12%	21%	12%	1%	1%	53%	78%	82%
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	13	32	16	2	0	108	3.9	4
		8%	19%	9%	1%	0%	63%	78%	80%
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	10	50	38	2	1	70	3.7	3.7
		6%	29%	22%	1%	1%	41%	74%	74%

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

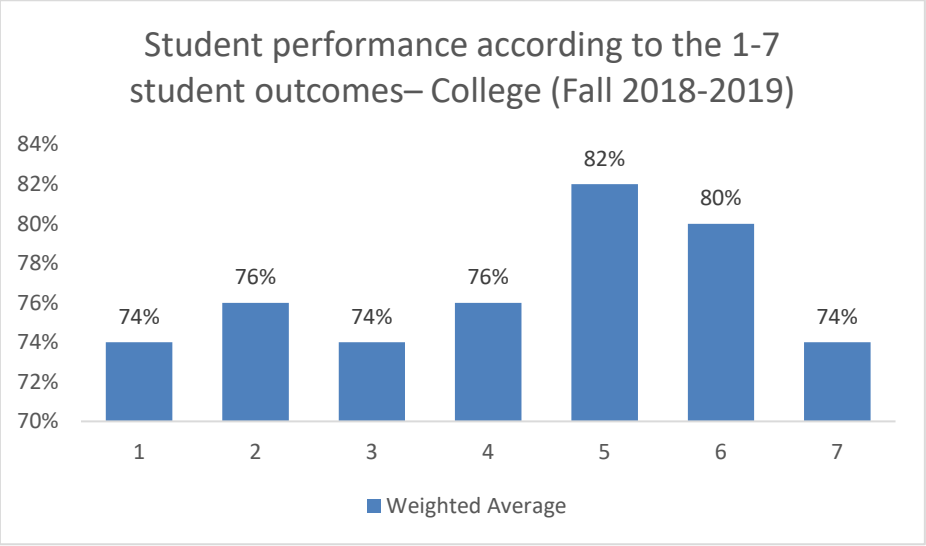

Figure 1: Students performance according to the 1-7 student outcomes – College (Fall 2018-2019)

Table 3: Students performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2018-2019) (According to the new 1-7 student outcomes)

O	Student Outcomes	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	80%	76%	82%	74%	80%	60%	74%	72%	**74%**
2	Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	82%	80%	76%	72%	76%	62%	82%	46%	**76%**
3	Communicate effectively with a range of audiences.	70%	70%	88%	78%	80%	66%	74%	68%	**74%**
4	Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	80%	76%	80%	70%	80%	70%	78%	72%	**76%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	86%	76%	90%	78%	80%	74%	88%	78%	**82%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	78%	80%	84%	78%	70%	62%	90%	80%	**80%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	72%	72%	80%	72%	80%	68%	80%	70%	**74%**

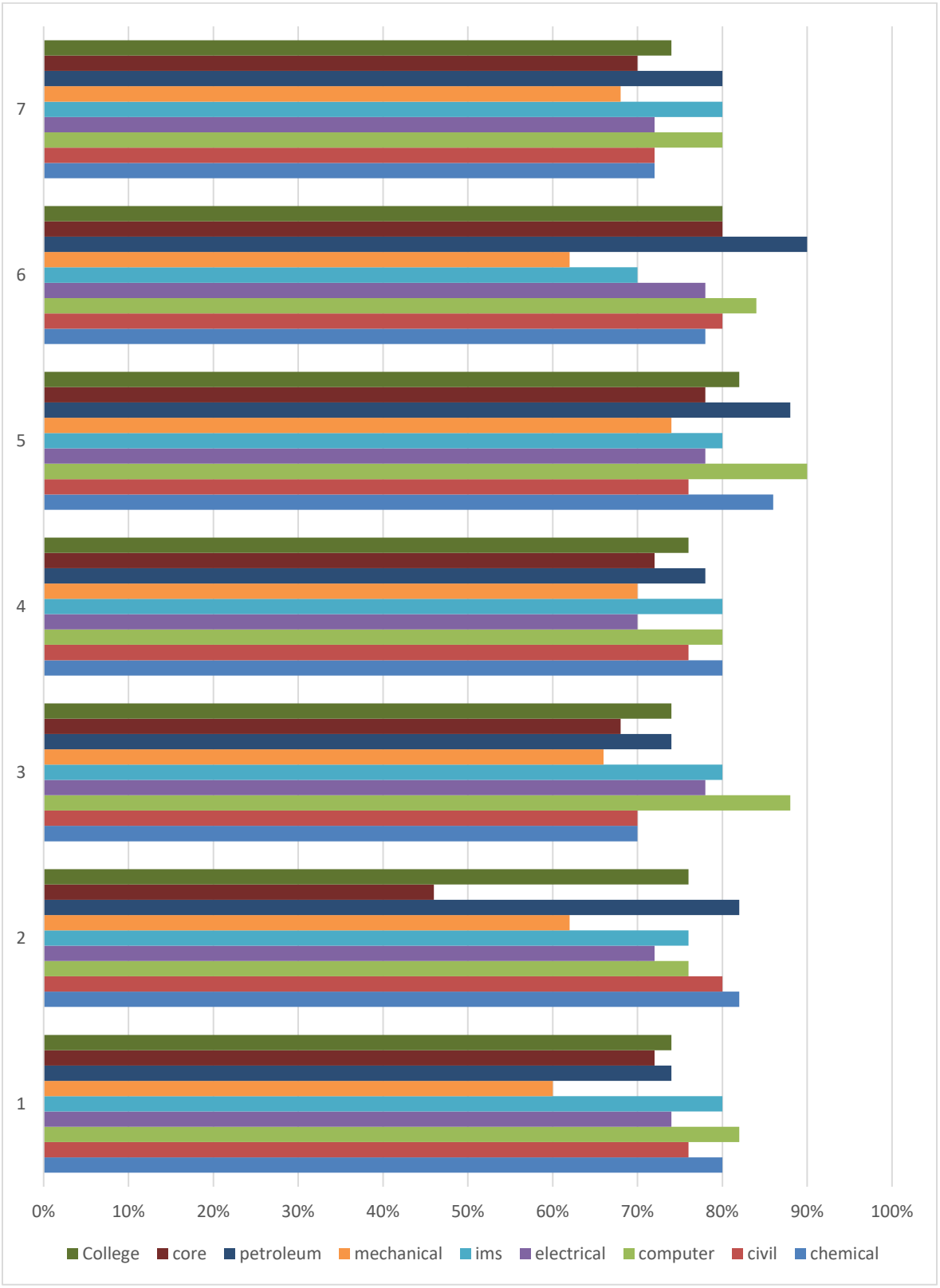

Figure 2: Students performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2018-2019) (According to the new 1-7 student outcomes)

Departmental Results

Chemical Engineering Program

Fall semester

Instructors: **12**
Courses: **23**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-211	Chemical Engineering Principles I	H	L		L			
0640-211	Chemical Engineering Principles I	H	L		L			
0640-215	Physical Chemistry	H		M	M	H	H	L
0640-241	Fluid Mechanics	H	M	L	M	L		H
0640-241	Fluid Mechanics	M	M				M	
0640-291	Fundamentals of Chemical Engineering Design		H	M	H	L		M
0640-324	Kinetics and Reactor Design (A)	H	H					
0640-343	Heat Transfer	H	M	L			L	
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-440	Mass Transfer Operations	H	H				L	
0640-440	Mass Transfer Operations	H	H	M	M	M	L	M
0640-461	Water Desalination	M	H		M	L		M
0640-462	Introduction to Biochemical Engineering	H	H		M		M	
0640-465	Air Pollution	H	M	L	H	L	L	
0640-472	Petroleum Refining Engineering	M		M	L	M	L	L
0640-472	Petroleum Refining Engineering	M	H	M	M	M	M	M
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-		4	4	4	4	4	4	4
0640-211	Chemical Engineering Principles I	3	3		3			
0640-211	Chemical Engineering Principles I	4	3		3			
0640-215	Physical Chemistry	3		3	3	3	3	3
0640-241	Fluid Mechanics	3	3	3	3	3		3
0640-241	Fluid Mechanics	4	3				4	
0640-291	Fundamentals of Chemical Engineering Design	4	4	3	5	4		4
0640-324	Kinetics and Reactor Design (A)	4	4					
0640-343	Heat Transfer	4	3	3			4	
0640-391	Chemical Process Synthesis	5	5	3	3	5		4
0640-391	Chemical Process Synthesis	4	4	3	3	5		4
0640-440	Mass Transfer Operations	4	4	3	3		4	
0640-440	Mass Transfer Operations	4	4	3	4	3	3	3
0640-461	Water Desalination	5	5		5	5		5
0640-462	Introduction to Biochemical Engineering	5	5		5		5	
0640-465	Air Pollution	4	5	4	4	4	4	
0640-472	Petroleum Refining Engineering	4	4	3	4	4	4	4
0640-472	Petroleum Refining Engineering	4	4	4	4	4	4	4
0640-491	Plant Design	4	4	5	4	5	3	3
0640-491	Plant Design	4	4	4	4	5	4	3
	Weighted Average	**4**	**4.1**	**3.5**	**4**	**4.3**	**3.9**	**3.6**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-343	Heat Transfer	Students did not follow instructions about immediate studying of each chapter and did not practice solving problems other than the posted homework. Students always do badly in the first exam and they always do excellent in the final. The best way to study for the heat transfer course is by solving problems and link it to real-life application.
0640-440	Mass Transfer Operations	Students performed overall satisfactorily in the class
0640-472	Petroleum Refining Engineering	The students in this course performed well
0640-472	Petroleum Refining Engineering	the students performance was very good. I gave the students bonus grade on a team project which most of the teams were enthusiastic about and did very well. The students who did low on the HW and Project scored the lowest grades in the course. Those students attribute their low performance to the high demand from other courses such as plant design.

Civil Engineering Program

Fall semester

Instructors: **26**

Courses: **35**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-201	Introduction to Design	M	H	H	M	M		M
0620-252	Engineering Materials	L	M	L	L		H	
0620-271	Structural Analysis I	H		H	L			
0620-310	Fluid Mechanics	H	L					
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-371	Structural Analysis II	H		M				L
0620-373	Reinforced Concrete I	M	H	H	M			L
0620-373	Reinforced Concrete I	M	H	H	M			L
0620-413	Groundwater Hydraulics	H	M	L	L	L		L
0620-414	Hydraulic Engineering	H	H	M		M		H
0620-430	Legal, Professional, and Social Aspects of Engineering			H	H	H		H
0620-430	Legal, Professional, and Social Aspects of Engineering			H	H	H		H
0620-435	Construction Engineering and Management	M	M	H		M		H
0620-437	Concrete Construction and Technology	H	H	M	M	M		M
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-456	Sustainability and green engineering	M	H	M	H	L		M
0620-473	Reinforced Concrete II	M	H	H				L
0620-475	Prestressed Concrete	H	H	L	M	L		L
0620-476	Computer Applications in Structural Engineering	M	H	H	L	M		L
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-201	Introduction to Design	3	5	4	4	4		1
0620-252	Engineering Materials	2	5	3	4		5	
0620-271	Structural Analysis I	3		3	3			
0620-310	Fluid Mechanics	3	3					
0620-350	Soil Mechanics	4	3	3		4	4	
0620-350	Soil Mechanics	5	3	3		3	4	4
0620-350	Soil Mechanics	3	4	4		4	4	4
0620-371	Structural Analysis II	4		3				4
0620-373	Reinforced Concrete I	3	3	3	3			3
0620-373	Reinforced Concrete I	3	3	2	3			3
0620-413	Groundwater Hydraulics	3	4	3	4	4		3
0620-414	Hydraulic Engineering	5	5	4		4		5
0620-430	Legal, Professional, and Social Aspects of Engineering			3	4	3		3
0620-430	Legal, Professional, and Social Aspects of Engineering			4	4	4		4
0620-435	Construction Engineering and Management	3	4	4		4		4
0620-437	Concrete Construction and Technology	5	2	4	5	4		4
0620-451	Foundation Engineering	5	4	3	3	4	3	3
0620-451	Foundation Engineering	3	3	3	3	3	3	3
0620-451	Foundation Engineering	4	4	3	3	2	3	3
0620-456	Sustainability and green engineering	3	4	4	4	3		4
0620-473	Reinforced Concrete II	3	4	2				3
0620-475	Prestressed Concrete	5	4	3	4	1		3
0620-476	Computer Applications in Structural Engineering	5	5	5	3	5		4
0620-490	Capstone Design Course		5	5	5	5		4
0620-490	Capstone Design Course		5	5	4	4		4
0620-490	Capstone Design Course	4	5	3	4	5		4
	Weighted Average	**3.8**	**4**	**3.5**	**3.8**	**3.8**	**4**	**3.6**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-310	Fluid Mechanics	The overall class performance was satisfactory
0620-350	Soil Mechanics	This batch of students is very good in applying science and mathematical knowledge in solving the problems.
0620-373	Reinforced Concrete I	Class size is adequate. For 75 minutes class, the board length is not enough. One more extra board shall be installed. No colored chalks are supplied in the class room.
0620-413	Groundwater Hydraulics	This a class of 27 female students. Overall performance was very good. I noted that some students lack the ability to use Microsoft excel basic tools. Students performance in term project was satisfactory. The course does not include strong design content and outcome should be revised in this regard

0620-430	Legal, Professional, and Social Aspects of Engineering	Proactive attitude of students toward the course content is not to the desired level
0620-437	Concrete Construction and Technology	- The analysis and evaluation is based on 7 students, which are all the students registered in the course. Such a small population size could affect the accuracy of the analysis. - As the performance in the majority of the student outcomes is between Very Good - Excellent, no immediate actions are needed for these outcomes. - The evaluation may indicate the need for more discussions/tutorials on formwork design problems.
0620-451	Foundation Engineering	1. Course project as well as field work were carried out. 2. To cover thoroughly the material, I suggest to split the course into two: shallow and deep foundations; and earth retaining structures 3. Students lack the basics English to make a valuable understanding of the reading materials. 4. students can not relate that all engineering design issues are related and need to be thoroughly understood.
0620-451	Foundation Engineering	Students prefer to solve numerical problems than to answer descriptive questions and questions requiring reasoning and causes of a particular phenomena. This may be in part due to the weakness in English language expression. Students lack the imagination to solve a new problem that they are not familiar with.
0620-456	Sustainability and green engineering	Participation of the students in local conferences and workshops , as well as class visits to recycling plants proved to be very successful and fruitful.
0620-475	Prestressed Concrete	This is an elective course and students usually come motivated with high GPA. This was an 'excellent 'class and is evidenced by good grades attained by the students
0620-490	Capstone Design Course	The course requirements are clear to students. The exhibition requirements, however, should be clearly set at the beginning of the course.
0620-490	Capstone Design Course	It is an excellent course to expose students to the new practical technology

Computer Engineering Program

Fall semester

Instructors: **25**

Courses: **39**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-207	Data Structures	H					H	
0612-221	Software Engineering I	H	H	H	H	H		
0612-221	Software Engineering I	H	H	H	H	H		
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-264	Digital Logic Laboratory			H		H	H	
0612-264	Digital Logic Laboratory			H		H	H	
0612-264	Digital Logic Laboratory			H		H	H	
0612-300	Design and Analysis of Algorithms	H	H					
0612-300	Design and Analysis of Algorithms	H	H					
0612-321	Software Quality Assurance		H	H	H		H	
0612-325	Human Computer Interaction		H	H	H			
0612-341	Database Systems-I	H	H		H			
0612-363	Introduction to Embedded Systems		H					
0612-363	Introduction to Microprocessors		H					
0612-364	Microprocessors Laboratory			H		H	H	
0612-368	Computer Organization		H					
0612-368	Computer Organization		H					
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-434	Robotics	H	H		H		H	H
0612-445	Operating System Principles	H	H				H	
0612-453	Cryptography and Network Security	H	H	H	H			H
0612-469	Computer Architecture Laboratory		H	H			H	
0612-469	Computer Architecture Laboratory		H	H			H	
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-207	Data Structures	3					3	
0612-221	Software Engineering I				4			
0612-221	Software Engineering I		4		5			
0612-262	Fundamentals of Digital Logic		3					
0612-262	Fundamentals of Digital Logic		4					
0612-262	Fundamentals of Digital Logic		3					
0612-264	Digital Logic Laboratory							
0612-264	Digital Logic Laboratory							
0612-264	Digital Logic Laboratory							
0612-300	Design and Analysis of Algorithms		2					
0612-300	Design and Analysis of Algorithms	3	3					
0612-321	Software Quality Assurance		4		5			
0612-325	Human Computer Interaction		4	5				
0612-341	Database Systems-I		4		3			
0612-363	Introduction to Embedded Systems		3					
0612-363	Introduction to Microprocessors		4					
0612-364	Microprocessors Laboratory					4	4	
0612-368	Computer Organization		3					
0612-368	Computer Organization		4					
0612-395	Computer Systems Engineering	4	3	4	4	5	4	4
0612-395	Computer Systems Engineering	5	5	5	5	5	5	4
0612-395	Computer Systems Engineering	4	3	3	1	4	5	3
0612-395	Computer Systems Engineering	4	4	4	4	4	4	4
0612-395	Computer Systems Engineering	5	5	5	5	5		5
0612-434	Robotics		4					
0612-445	Operating System Principles		4					
0612-453	Cryptography and Network Security				4			
0612-469	Computer Architecture Laboratory		4					
0612-469	Computer Architecture Laboratory		4					
0612-495	Capstone Design	4	5	5	4	5	4	4
0612-495	Capstone Design	4	4	4	3	4	4	3
0612-495	Capstone Design	4	4	4	4	4	4	4
0612-495	Capstone Design	5	5	5	5	5	5	5
	Weighted Average	**4.1**	**3.8**	**4.4**	**4**	**4.5**	**4.2**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

ourse Number	Course Name	Remarks and Suggestions
0612-262	Fundamentals of Digital Logic	None
0612-300	Design and Analysis of Algorithms	Students were able to understand and apply the concepts taught in class as seen in the assignments but I noticed that they struggled with solving problems using formal mathematical notation. The students that did the homeworks succeeded in doing well in the exams, while the students that did poorly in the exams were seen to either have skipped homeworks, which contain vital practice problems, or only did them partially.
0612-368	Computer Organization	No comment
0612-395	Computer Systems Engineering	It is highly recommended that students get more involved in communication with stakeholders to have realistic useful projects to the community.
0612-395	Computer Systems Engineering	No suggestions

Electrical Engineering Program

Fall semester

Instructors: **8**

Courses: **19**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-230	Semi-conductors							
0610-297	Corner-Stone Design							
0610-297	Corner-Stone Design							
0610-297	Corner-Stone Design							
0610-312	Signals and Systems	H						H
0610-318	DSP							
0610-333	Electronics II	H						H
0610-370	Control Theory I	H	M		M		M	
0610-374	Control Laboratory I	H	M	M	M	M	H	
0610-381	Communication Theory	H				M	H	H
0610-381	Communication Theory	H				M	H	H
0610-421	Microwave Engineering	H		M		M		H
0610-432	Analog Integrated Circuits	H						M
0610-454	Electrical Power Systems Laboratory II	H					H	M
0610-458	Electric Power Distribution Engineering	H		M				H
0610-472	Control Theory II	H	M		M	M		M
0610-477	Optimization Techniques	H			M		M	M
0610-497	Engineering Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-230	Semi-conductors	2						
0610-297	Corner-Stone Design	5	4	4	4	4	4	4
0610-297	Corner-Stone Design	4	4	3	5	3	5	4
0610-297	Corner-Stone Design	4	4	4	3	4	4	4
0610-312	Signals and Systems	4						3
0610-318	DSP	3	3	4	4	4	3	4
0610-333	Electronics II	4						4
0610-370	Control Theory I	4	3		4		3	
0610-374	Control Laboratory I	3	4	4	3	4	4	
0610-381	Communication Theory	4				4	4	3
0610-381	Communication Theory	3				3	4	4
0610-421	Microwave Engineering	4		3		4		4
0610-432	Analog Integrated Circuits	4						4
0610-454	Electrical Power Systems Laboratory II	4					4	4
0610-458	Electric Power Distribution Engineering	3		3		3		3
0610-472	Control Theory II	3	3		3	3		3
0610-477	Optimization Techniques	4			3		3	4
0610-497	Engineering Design	4	4	5	4	5	5	4
	Weighted Average	**3.7**	**3.6**	**3.9**	**3.5**	**3.9**	**3.9**	**3.6**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-318	DSP	Some weaknesses in the mathematical backgrounds.
0610-381	Communication Theory	Mathematical background need to be improved.
0610-458	Electric Power Distribution Engineering	The students attendance was not satisfactory and the homework solving was not taken seriously. The students mathematical and engineering background need more emphasize and enhancement

Industrial & Management Systems Engineering Program

Fall semester

Instructors: **5**

Courses: **12**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-351	Engineering Statistical Analysis	H					H	
0660-451	Reliability and Maintainability Engineering	H	H		H		H	
0660-454	Production Planning and Inventory Control	H	H					
0660-461	Operations Research II	H						
0660-464	Optimization Methods	H						
0660-481	Systems Simulation	H	H	H		H	H	H
0660-496	Industrial Engineering Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-351	Engineering Statistical Analysis	3					2	
0660-451	Reliability and Maintainability Engineering	5	5		4		4	
0660-454	Production Planning and Inventory Control	4	3					
0660-461	Operations Research II	4						
0660-464	Optimization Methods	4						
0660-481	Systems Simulation	4	3	4		4	4	3
0660-496	Industrial Engineering Design	4	4	4	4	4	4	5
	Weighted Average	**4**	**3.8**	**4**	**4**	**4**	**3.5**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0660-351	Engineering Statistical Analysis	The introductory course in probability should be taught by a faculty member in IMSE.

Mechanical Engineering Program

Fall semester

Instructors: **14**

Courses: **28**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-259	Introduction to Design	L	H	H	M	H		M
0630-318	System Dynamics	H	M	M				
0630-322	Engineering Thermodynamics II	H	M		M	L		L
0630-331	Fluid Mechanics I	H	L					
0630-351	Mechanical Design I	H	M		L			L
0630-351	Mechanical Design I	H	M		L			L
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-415	Mechanical Vibrations	H	M	M		M		L
0630-415	Mechanical Vibrations	H	M	M		M		L
0630-421	Heat Transfer	H	M	M				
0630-447	Corrosion Control of Engineering Materials	H	M	L	M	L	M	L
0630-451	Mechanical Design II	H	H	M	M	L		M
0630-455	Computer-Aided Design	H	M	M	M	L		M
0630-456	Computer Aided Manufacturing	H	L	M	L	M		L
0630-459	Engineering Design	H	H	H	H	H	M	H
0630-475	Thermal Science Lab. II		M	H	L	M	H	
0630-481	Tribology and Lubrication							

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	3			3		3	3
0630-241	Materials Science and Metallurgy	4			3		3	3
0630-241	Materials Science and Metallurgy	3			3		2	3
0630-259	Introduction to Design	3	4	4	4	4		4
0630-318	System Dynamics	2	2	3				
0630-322	Engineering Thermodynamics II	3	3		3	3		3
0630-331	Fluid Mechanics I	2						
0630-351	Mechanical Design I	3	3		3			3
0630-351	Mechanical Design I	3	3		3			3
0630-353	Manufacturing Processes	4	3	3	3	4		
0630-353	Manufacturing Processes	4	3	4	3	4		
0630-415	Mechanical Vibrations	2	3	2		2		2
0630-415	Mechanical Vibrations	2	2	3				2
0630-421	Heat Transfer	2	2	3				
0630-447	Corrosion Control of Engineering Materials	4	4	4	4	4	4	4
0630-451	Mechanical Design II	2	3	3	3	3		3
0630-455	Computer-Aided Design	3	4	3	4	3		4
0630-456	Computer Aided Manufacturing	4	5	4	4	4		5
0630-459	Engineering Design	4	4	5	4	5	3	4
0630-475	Thermal Science Lab. II		1	2	3	3	3	
0630-481	Tribology and Lubrication	4	4	3	3	4		3
	Weighted Average	**3**	**3.1**	**3.3**	**3.5**	**3.7**	**3.1**	**3.4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	Overall the class performance was disappointing. Only two students achieved the outcomes at a satisfactory level. Issues with class attendance, English comprehension and motivation remain.
0630-241	Materials Science and Metallurgy	In general, most of the students had a very-good performance throughout the semester. I had a good number of students with excellent performance who were eager to learn and ask questions about the subject. Many students performed satisfactorily in exams and quizzes. The number of students with poor performance was few. I assigned the course TA to provide review sessions before each exam. Also, a review session was given by the TA before the final exam. The new On-line Course System (OCS), http://ocs.eng.ku.edu.kw/, was utilized to take on-line quiz on phase diagram, phase transformation and thermal

		processing of metals (ch.11, ch.12, and ch.17). Also, the OCS website included many examples, animations and links to useful materials science websites.
0630-259	Introduction to Design	During this course, students are requested to acquire different skills that would need practical knowledge. Therefore, I suggest to dedicate more time for laboratory sessions to allow for students to apply these skills.
0630-322	Engineering Thermodynamics II	1) Most of the students have weak background in Thermodynamics 1 and/or they took it a long time ago. 2) Students do not read the textbook. 3) Students weak in English. 4) Some students do not attend the class. 5) about 10% of the class didn't do the project. Few stopped by the office to discuss the project with the instructor. 6) Need to enforce students to take Thermo 2 immediately after finishing Thermo 1.
0630-331	Fluid Mechanics I	The overall class performance is weak. It is only two students are seen to read the book and discuss problems with the instructor during the semester. Others are just reading the solution manuals plus other private instructors notes. I strongly believe the book is irrelevant to our students at this level. It covers the boundary layer topic at a late stage in the course. In addition to the difficult wordings of the book. I suggest changing the book for the future semesters.
0630-351	Mechanical Design I	The students show a good sign of interesting in the material. However, lack of knowledge in the mechanics of material affected the performance of the majority. Half of the covered materials were given in mechanics of material, material science, and manufacturing (chapters 1 and 2, three quarters of chapter 3, and half of the chapter 4). Therefore, I emphasized in the materials that they did not cover it in the previous courses such as Castigliano's method, buckling, failures, and fatigues.
0630-353	Manufacturing Processes	Report writing skills are below average for college students. The course can be expanded to include some nanomanufacturing processes.
0630-353	Manufacturing Processes	This course demands more hands on experience and less theory, therefore having field trips to local manufacturing facilities as part of the course curriculum should be mandatory to the student. Many of the students enjoyed the field trips and it help them recognize the theory of Manufacturing processes hands on. Also, the issue of English ability to read and write reports is still impacting the performance of some students in this course.
0630-421	Heat Transfer	Students were weak in math and physics. Their writing skills are below average. The students have difficulty understanding heat transfer problems with industrial applications.
0630-447	Corrosion Control of Engineering Materials	Reading difficulties was noticed and effective communication in writing reports was not to the level needed in senior students. It was mandatory to read external resources other than the text book and not many were able to comprehend the scientific language.
0630-455	Computer-Aided Design	This was a reasonably size small class. There was good interaction between the instructor and the students. We need to emphasize programming skills more. Hopefully, newly introduced Matlab based programming course will be instrumental in addressing this issue.

0630-456	Computer Aided Manufacturing	Course started with 35 students. At the end only 16 students completed the course. Several students withdrew and others decided to forfeit the course by getting an FA. Reasons for this attrition may be because many were Senior students who were overloaded with other courses and project and, therefore, could not keep up with the demands of this course. The students who remained performed well overall and they achieved to get higher grades. All who remained were interested in the topic and put in a lot of effort in the course.
0630-459	Engineering Design	This is my first time teaching this course. My first remark is that 3 months is not enough to completely conduct and implement the course requirements. The students are completely occupied by other courses which hindered their concentration on this course and its requirements. Second remark, the course design problems need to be standardized (along all instructors) from the point of view of what kind of engineering requirements (e.g., moving parts, max size and weight, level of control, manual vs automatic, etc.). My final remark is the need to encourage students to built their prototype in our workshop.
0630-475	Thermal Science Lab. II	The students worked well in teams performing the experiments, analyzing the data, and writing the reports. The quality of the reports, however, was below average. The students English writing is weak. The student syllabus was including experimental design activity We recommend, in the future, adding a simple solar energy experiment that includes experiment design and uncertainty analysis.
0630-481	Tribology and Lubrication	In this course, students were requested to develop computer codes to design for oil lubricated slider bearings. However, students showed weaknesses in programming skills, especially in using MATLAB. In addition, the communication skills for students were satisfactory (but lower than what expected from senior students).

Petroleum Engineering Program

Fall semester

Instructors: **7**

Courses: **15**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-324	Reservoir Engineering	H			L			M
0650-342	Mud and Cement Laboratory	L		H	M	H	H	
0650-342	Mud and Cement Laboratory	L		H	M	H	H	
0650-354	Well Logging	M	L	L	L	L	H	H
0650-355	Well Logging Laboratory	M	L	L	L	L	H	H
0650-355	Well Logging Laboratory	M	L	L	L	L	H	H
0650-411	Petroleum Production Engineering	H	H	M	M	M		L
0650-411	Petroleum Production Engineering	H	H	M	M	M		L
0650-427	Secondary Recovery	H	M	M	M	H	M	H
0650-432	Well Testing	H		L	M		H	M
0650-435	Production Equipment Design	H	H	H	M	H		M
0650-496	Well Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-324	Reservoir Engineering	4			4			4
0650-342	Mud and Cement Laboratory	3		3	4	5	5	
0650-342	Mud and Cement Laboratory	3		3	4	5	5	
0650-354	Well Logging	4	3	3	4	3	4	4
0650-355	Well Logging Laboratory	5	4	3	3	3	4	4
0650-355	Well Logging Laboratory	3	3	4	4	3	4	4
0650-411	Petroleum Production Engineering	4	5	4	4	5		3
0650-411	Petroleum Production Engineering	2	3	4	3	4		4
0650-427	Secondary Recovery	4	4	3	3	3	5	4
0650-432	Well Testing	4		4	4		4	4
0650-435	Production Equipment Design	3	4	4	5	5		5
0650-496	Well Design	5	5	5	4	5	5	4
	Weighted Average	**3.7**	**4.1**	**3.7**	**3.9**	**4.4**	**4.5**	**4**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-411	Petroleum Production Engineering	The student are weak in scientific programming skills. Also, the student may have a reasonable understanding of component of petroleum production system, but they lack the integrative understanding of the inter system at work. Furthermore, the students lack some concepts in phase behavior and fluid mechanics, which was clearly demonstrated in their exams and quizzes.
0650-435	Production Equipment Design	In general, the students in this course showed a significant abilities in applying their engineering and science fundamentals in a complex and challenging problem in which actual field data was used to simulate reality. In addition, the student were able to integrate engineering with social, environmental, economic factors to develop and comprehensive solution. The main weakness of the students is the ability in written communication skills, which requires either to strength the existing technical writing course or add another one.

Core Engineering Courses

Fall semester

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-200	Computer Programming for Engineers	H						L
0600-202	Statics	M		M				
0600-202	Statics	M		M				
0600-202	Statics	M		M				
0600-202	Statics	M		M				
0600-203	Dynamics	H						
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-205	Electrical Engineering Fundamentals	H						H
0600-208	Engineering Thermodynamics	H			L			
0600-208	Engineering Thermodynamics	H			L			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING							
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-310	ENGINEERING ETHICS			M	H	L		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-200	Computer Programming for Engineers	3						3
0600-202	Statics	2		3				
0600-202	Statics	3		3				
0600-202	Statics	5		5				
0600-202	Statics	3		3				
0600-203	Dynamics	2						
0600-204	Strength of Materials	4	3					4
0600-204	Strength of Materials	3	2					
0600-204	Strength of Materials	3	2					
0600-204	Strength of Materials	3	2					3
0600-205	Electrical Engineering Fundamentals	4						3
0600-208	Engineering Thermodynamics	5			4			
0600-208	Engineering Thermodynamics	3			3			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	3			3			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	3			3			
0600-209	Engineering Economy	5			4			
0600-304	Engineering Probability and Statistics	3						
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-304	Engineering Probability and Statistics	3			3		3	3
0600-304	Engineering Probability and Statistics	3					3	3
0600-304	Engineering Probability and Statistics	3			3		4	3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4		5				5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4						5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4						4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				5		5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3				3		3
0600-310	ENGINEERING ETHICS			3	4	3		3
	Weighted Average	**3.6**	**2.3**	**3.4**	**3.6**	**3.9**	**4**	**3.5**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-202	Statics	NA
0600-202	Statics	NA
0600-202	Statics	- Both outcomes are evaluated at the "Excellent" level. - Continue to monitor the outcomes in upcoming semesters.
0600-204	Strength of Materials	The course was administered in a unified manner across all six sections. Two outcomes are addressed by this course (1 and 2). Student performance is close to satisfactory for outcome 1 (analysis) while it is weak for outcome 2 (Design). Weak performance in design could be due to the fact that this is the first course in engineering design and students are not familiar with the open-ended nature of a design problem. Student performance in this outcome will be monitored in subsequent semesters.
0600-208	Engineering Thermodynamics	1) Most of students do not read their textbooks. 2) Students are weak in English. 3) Lot of students copy their HW. 4) Some senior students take this 200-level class (Computer, Civil, maybe aother departments)
0600-208	Engineering Thermodynamics	In general, the student's performance was satisfactory. Most of the students lack programming skills, they have difficulty using EES. Some extra lecture should be provided to teach them EES with examples.
0600-209	Engineering Economy	Although it was a relatively large class, I feel that each student benefited from the lectures. Students were mostly attentive and kept up because of the quizzes and homework assignments that they needed to submit. I made sure that they read the textbook and not entirely relied on the class slides during their review for quizzes and exams. Overall, they performed as expected and most of them did very well.
0600-304	Engineering Probability and Statistics	Better command of English is needed. More emphasis on real problems as related to the local culture.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students have to expose more on coding and programming. Most of the students took the calculus, linear algebra, and differential equation long time ago so they show some struggle in understanding the concept of the numerical method. I strongly recommend to increase the weight of the midterms grades to 40% and decrease the final weight to 30%. The remaining 30% will be distributed as 15% lab activity, 7.5% MATLAB quizzes, and 7.5% in-class MATLAB written quizzes or MATLAB assignments. The proposed distribution of the grades will make sure that the students who is not strong enough on MATLAB and does not have adequate knowledge in MATLAB will not pass the class.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	1) Please note that outcome 5 is not applicable to this course. 2) Please change the relevance of outcome 7 to M

Instructor Class Evaluation Form

Kuwait University

College of Engineering & Petroleum

Instructor Class Evaluation Form

Course Number and Title:

Instructor:

Semester:

Number of times that you taught this course at KU:

EVALUATION METHOD	**GRADING SYSTEM**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
TOTAL	*100 %*

	GRADE DISTRIBUTION													
	A	A–	B+	B	B–	C+	C	C–	D+	D	F *or* FA	Sum	I	W
Weight (W)	4.0	3.6	3.3	3.0	2.6	2.3	2.0	1.6	1.3	1.0	0.0	–	–	–
No. of Students (N)												**ΣN =**		
N*W												**Σ(W*N) =**		

CLASS GPA = Σ (W* N) / Σ N = _____

CLASS GPA without (F or FA) = _____

Program Outcomes	Relevance				Performance					Explanation Activities and Practices	Interpretation & Evidence
	Not Relevant	Somewhat Relevant	Moderately	High Relevant	Very Weak	Weak	Satisfactory	Very Good	Excellent		
1. Apply mathematics, science, and engineering	☐	☐	☐	☐	☐	☐	☐	☐	☐		
2. Design and conduct experiments and analyze and interpret data	☐	☐	☐	☐	☐	☐	☐	☐	☐		
3. Design a system, a component or a process	☐	☐	☐	☐	☐	☐	☐	☐	☐		
4. Function as an effective team member	☐	☐	☐	☐	☐	☐	☐	☐	☐		
5. Identify, formulate, and solve engineering problems	☐	☐	☐	☐	☐	☐	☐	☐	☐		
6. Understand professional & ethical responsibilities	☐	☐	☐	☐	☐	☐	☐	☐	☐		
7. Communicate effectively	☐	☐	☐	☐	☐	☐	☐	☐	☐		
8. Understand the impact of engineering solutions	☐	☐	☐	☐	☐	☐	☐	☐	☐		
9. Recognize the need for life-long learning	☐	☐	☐	☐	☐	☐	☐	☐	☐		
10. Know the contemporary issues	☐	☐	☐	☐	☐	☐	☐	☐	☐		
11. Use the techniques, skills and modern engineering tools for engineering practice	☐	☐	☐	☐	☐	☐	☐	☐	☐		
12. An ability to assume responsibility at the entry level in the areas of specialization that are important to Kuwait and the region	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Remarks and Suggestions:

_____

_____

_____

Kuwait University
College of Engineering & Petroleum

Instructor Class Evaluation Form

Course Number and Title:
Instructor:
Semester:
Number of times that you taught this course at KU:

EVALUATION METHOD	**GRADING SYSTEM**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
TOTAL	*100 %*

	GRADE DISTRIBUTION													
	A	A–	B+	B	B–	C+	C	C–	D+	D	F *or* FA	Sum	I	W
Weight (W)	4.0	3.6	3.3	3.0	2.6	2.3	2.0	1.6	1.3	1.0	0.0	–	–	–
No. of Students (N)												**ΣN =**		
N*W												**Σ(W*N) =**		

CLASS GPA = Σ (W* N) / Σ N = _____

CLASS GPA without (F or FA) = _____

Program Outcomes	Relevance				Performance					Explanation Activities and Practices	Interpretation & Evidence
	Not Relevant	Somewhat Relevant	Moderately Relevant	High Relevant	Very Weak	Weak	Satisfactory	Very Good	Excellent		
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	☐	☐	☐	☐	☐	☐	☐	☐	☐		
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	☐	☐	☐	☐	☐	☐	☐	☐	☐		
3. an ability to communicate effectively with a range of audiences	☐	☐	☐	☐	☐	☐	☐	☐	☐		
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	☐	☐	☐	☐	☐	☐	☐	☐	☐		
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	☐	☐	☐	☐	☐	☐	☐	☐	☐		
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	☐	☐	☐	☐	☐	☐	☐	☐	☐		
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Remarks and Suggestions:

Instructions for Course Assessment

Kuwait University
College of Engineering and petroleum
Office of Academic Assessment

Instructions for Course Assessment

Introduction

All instructors at the college should carry out course assessment and submit a course assessment file to the departmental assessment coordinators at the end of the term. In the following some guidelines on how to prepare an assessment file are given:

Objectives of Course Assessment

- To obtain direct measurements of student performance
- To assure that students are acquiring the required outcomes
- To assure that learning experiences are consistent with the outcomes
- To establish the required feedback loops

The items to be included in the course assessment file

- A hardcopy of completed instructor class evaluation form (ICEF) submitted online.
- A copy of the list of final grades
- Course syllabus including the following information as a minimum
  - Instructor contact details and office hours
  - Textbook and references
  - Tentative course outline
  - Dates of mid-term and final exams
  - Grading policy
- A list of course outcomes and their relationship with the college or program outcomes (Course description and classification)
- A copy of final exam and major term project(s)
- Summary data and analysis from various assessment tools (e.g., oral and written report evaluation, teamwork, self evaluations)
- Samples of student works supporting the ICEF (e.g., key assignments, homework, exams, project reports, essays etc.)
- Any other supporting material demonstrating student achievement (e.g., sample class portfolios, video recordings, etc.)

Instructor Class Evaluation Form

The main assessment tool used for the course assessment is the Instructor Class Evaluation Form. This form reports the grade distribution as well as the assessment of program student outcomes served by the course. First, the instructors are asked to indicate the level of importance of each outcome as it relates to the course. Normally, this rating should have been already assigned by the Teaching Area Group using the following guidelines:

H (highly relevant (3)): Demonstrating this outcome is critical for the students to perform successfully; or the students may benefit significantly from this course toward the outcome (formal instruction, practice, assessment).

M (Moderately relevant (2)): Demonstrating this outcome has considerable impact on the overall performance of the student, or the students may benefit moderately from this course toward the outcome (informal instruction, practice, and assessment).

L (Somewhat relevant (1)): Demonstrating this outcome has only minor impact on the overall performance of the student. However, there are opportunities to observe this outcome (practice and assessment).

The instructors then evaluate student performance relative to what is normally expected from them at their level according to the following scale:

- Students' performance was very weak (1)
- Students' performance was weak (2)
- Students' performance was satisfactory (3)
- Students' performance very good (4)
- Students' performance excellent (5)

The best method of evaluation of the student achievement is to assess individual students relative to the outcomes. Then, an average rating can be obtained for the whole class. The rating should be justified by referring to specific student works or assessment results.

The instructors are also asked to provide feedback on the course content and outcomes, instructional and assessment methods. They also comment on the achievement of program outcomes and indicate any deficiencies observed.

Assessment Methods

The assessment methods include but not limited to the following:

- Performance Appraisals (e.g., written and oral presentations, teamwork, lab experiments, artwork, etc.)
- Surveys (Online tools, or custom designed forms seeking student perception of learning gains, or their opinions on certain aspects)
- Traditional assessment methods (Exams, homework, project, etc.)

Assessment Tools

The following is a list of available assessment instruments to be used in course assessment. Instructors are encouraged to use standard tools as much as possible to facilitate analysis. However, these tools can be modified to suit a specific course, or additional tools can be adopted.

- Written report evaluation form or rubric
- Oral presentation evaluation form or rubric
- Lab report evaluation form or rubric
- Teamwork evaluation form or rubric
- Term Project evaluation form or rubric
- Final Exam evaluation form or rubric

The instructors are encouraged to submit summary statistical data in addition to the copies of the completed forms.

APPENDIX C:
EXIT SURVEY RESULTS

For the Academic year 2017-2018

October 2018

Introduction:

This report presents the College of Engineering and Petroleum Exit Survey Results for the Academic year 2017-2018. The survey was prepared, conducted and analyzed by the Office of Academic Assessment (OAA).

The exit survey form was provided to students online. Completing the exit survey is considered as a requirement for graduation. After submitting the survey, each student prints a confirmation page, which is given to his/her department to complete the graduation process. Most departments cooperate and this greatly improves the participation rates. Also, graduating students presenting their capstone projects on engineering design day must provide proof of completing the survey to the Engineering Training and of Alumni Center (ETAC).

College Mission & Vision Statements

Mission

- To provide students with quality engineering education
- To advance and disseminate knowledge
- To lead the society in enhancing its welfare

Vision

To become the leading College of Engineering in the Middle East, recognized for its outstanding education, research and outreach programs and for the quality, character and integrity of its graduates.

College Educational Objectives (Goals)

- To create a dynamic academic environment where faculty, students and staff cooperate in preparing individuals for successful careers.
- To keep pace with scientific and technological progress in engineering, and to contribute to its advancement to address the immediate and long-term needs of the society.
- To provide outreach programs that meet continuing education and training needs of the country and the region.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

The exit survey form contains four parts covering different aspects that the College of Engineering and Petroleum consider important for students to assess. The first part is about the assessment of engineering student skills where the first 15 questions are common among all departments, and the rest are customized by each program. These questions are based on the 11(a-k) student outcomes and program criteria. The second part is about the assessment of the learning environment. The third part covers the assessment of support services. The fourth part is a general assessment that includes three open ended questions.

A total of **816** students participated in the exit survey during the academic year 2017-2018. Table 1 shows the number of students participated in the survey according to program and gender.

Table 1 Exit survey participation breakdown

Program	Total Responses	Gender	Response	Percentage
CHEMICAL	116	Male	39	34%
		Female	70	60%
CIVIL	188	Male	21	11%
		Female	147	78%
COMPUTER	74	Male	21	28%
		Female	44	59%
ELECTRICAL	223	Male	67	30%
		Female	146	65%
IMSE	63	Male	12	19%
		Female	48	76%
MECHANICAL	53	Male	31	58%
		Female	22	42%
PETROLEUM	99	Male	21	21%
		Female	71	72%
TOTAL	816	Male	212	26%
		Female	548	67%

Survey Results:

Table 2 shows students' intentions for their future plans. Most of the students (63%) expect to work for the government, 51% for the private sector, 27% of the students are planning or at least thinking of joining a graduate program, and 27% start their own business.

Table 3 shows students' feedback for the first group of questions in the exit survey, which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average rating and the satisfaction index (SI) out of 5 and as percentage for each item which is the percentage of the students who evaluated themselves as well prepared and very well prepared. An SI value lower than 50 % may be considered to indicate dissatisfaction.

Transition to the New Student Outcomes (1-7)

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to only seven student outcomes (1-7). A mapping framework is developed to properly implement these changes during the transition period.

Both the previous 11 (a-k) and new 7 student outcomes are shown below. The mapping is then presented:

Previous Student Outcomes (a-k)

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multidisciplinary teams
5. an ability to identify, formulate, and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The New Student Outcomes (1-7) (Implemented, Fall 2018)

8. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
9. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
10. an ability to communicate effectively with a range of audiences
11. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
12. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
13. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

14. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The mapping framework of student outcomes SOs is given below:

			2019-2020 cycle						
			1	2	3	4	5	6	7
Previous Student Outcomes	1	*a*	✓						
	2	*b*						✓	
	3	*c*		✓					
	4	*d*					✓		
	5	*e*	✓						
	6	*f*				✓			
	7	*g*			✓				
	8	*h*				✓			
	9	*i*							✓
	10	*j*				✓			
	11	*k*	(✓)	(✓)				(✓)	

$SO_1 = 0.8 * \left(\frac{SO_1+SO_5}{2}\right) + 0.2 * (SO_{11})$
$SO_2 = 0.8 * (SO_3) + \quad 0.2 * (SO_{11})$
$SO_3 = SO_7$
$SO_4 = \left(\frac{SO_6+SO_8+SO_{10}}{3}\right)$
$SO_5 = SO_4$
$SO_6 = 0.7 * (SO_2) + \quad 0.3 * (SO_{11})$
$SO_7 = SO_9$

Calculation of averages for the new outcomes based on the previous outcomes

As mentioned before, additional outcomes were articulated by different programs to further examine specific aspects of students learning. Different departments typically use 15-17 SOs for that purpose. Therefore, another mapping framework is used to map the common 15 outcomes to the 11 SOs.

			Previous cycle										
			1	2	3	4	5	6	7	8	9	10	11
Student Outcomes Elements	1	*a*	✓										
	2	*b*		✓									
	3	*c*			✓								
	4	*d*				✓							
	5	*e*					✓						
	6	*f*						✓					
	7	*g*							✓				
	8	*h*							✓				
	9	*i*								✓			
	10	*j*									✓		
	11	*k*										✓	
	12	*l*											✓
	13	*m*											✓

	14	*n*											✓
	15	*o*	✓										

$SO_1 = \left(\frac{SO_1+SO_{15}}{2}\right)$
$SO_2 = SO_2$
$SO_3 = SO_3$
$SO_4 = SO_4$
$SO_5 = SO_5$
$SO_6 = SO_6$
$SO_7 = \left(\frac{SO_7+SO_8}{2}\right)$
$SO_8 = SO_9$
$SO_9 = SO_{10}$
$SO_{10} = SO_{11}$
$SO_{11} = \left(\frac{SO_{12}+SO_{13}+SO_{14}}{3}\right)$

Calculation of averages for the 11 outcomes based on the measurements of the 15 outcome elements

Following the mapping procedure outlined above, the statistics of Table 3 are shown in Table 4 according to the new student outcomes (1-7); acquired at Kuwait University – Engineering programs

Figure 1 shows the average rating and satisfaction index for the new student outcomes. As it can be seen the students are satisfied by the outcomes acquired at the college and university.

Table 5 shows students' feedback for the second group of questions about their level of satisfaction for the learning Environment at Kuwait University. Figure 2 shows the average rating and satisfaction index for this group of questions.

Notice that while the averages are at satisfactory levels the SIs are low, which indicates that students are generally not very satisfied with the learning Environment at Kuwait University. Looking at the results, we can see that the satisfaction index is low (mostly below 50%) for the following:

- Quality of instruction and support for learning provided by the faculty members in: science, computers, and Humanities and Social sciences.
- Quality of instruction and support for learning given by teaching assistants and engineers within major.
- Quality of advice by the staff with respect to: career planning
- Equity of treatment by: Academic administrators, Faculty, Teaching assistants and engineers, Fellow students.
- Quality of the facilities: classroom, science laboratories, engineering laboratories, computing facilities, and libraries.

Table 6 shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. Figure 3 shows the average rating and satisfaction index for this group of questions. The table also shows the amount of interaction they had with each item. As it can be seen the students are generally not satisfied with:

- Academic Services: Admissions/Registrar.
- Other Services: food services, parking, recreation and athletics.

Tables 7-9 show the differences among departments for each of the three groups of questions mentioned above. Figures 4-6 show the average rating for each of the three groups of questions.

These results are somehow justified by the impact of growing number of students for the same facilities. In addition, currently the College is in transition to move to the new Sabah Al-Salem University City, and maintenance is at bare minimum.

Table 2 Students future plans

Plans	N	%
Intend to work in the government sector.	517	63%
Intend to work in the private sector.	420	51%
Intend to go to graduate school.	221	27%
Intend to start my own business	219	27%
Intend to do other things	56	7%
study new languages / attend workshops		
Travel around, do new hobbies.		
continue studying		
obtain master and PHD degree		
programming video games		
I work now in Kuwait national guard		
cont. my studies (master and PHD)		
I intend to join a training program		
I would prefer working for authorities or petrol companies		
Complete my post graduate studies		
To have my master and doctor degree		
Continue studying, do arts, and build robots.		
I intend to get a master's degree		
Join the Proteges & engage in the volunteering field		

Table 3 Assessment of the outcomes acquired at Kuwait University – Engineering programs

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	226	301	201	23	2	63	4	3.5
		28%	37%	25%	3%	0%	8%	80%	70%
2	Design and conduct experiments, as well as to analyze and interpret data.	177	296	221	55	4	63	3.8	3.1
		22%	36%	27%	7%	0%	8%	76%	62%
3	Design a system, component, or process to meet desired needs.	172	275	237	57	10	65	3.7	3
		21%	34%	29%	7%	1%	8%	74%	60%
4	Function effectively in teams.	269	250	178	41	11	67	4	3.5
		33%	31%	22%	5%	1%	8%	80%	70%
5	Identify, formulate, and solve engineering problems.	224	298	184	41	4	65	3.9	3.5
		27%	37%	23%	5%	0%	8%	78%	70%
6	Understand professional and ethical responsibilities. (e.g. safety, professional ethics, code of conduct).	277	232	183	53	7	64	4	3.4
		34%	28%	22%	6%	1%	8%	80%	68%
7	Communicate effectively (written reports).	238	249	194	61	11	63	3.9	3.2
		29%	31%	24%	7%	1%	8%	78%	64%
8	Communicate effectively (oral presentations).	229	236	200	73	14	64	3.8	3.1
		28%	29%	25%	9%	2%	8%	76%	62%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	245	246	208	42	9	66	3.9	3.3
		30%	30%	25%	5%	1%	8%	78%	66%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	240	235	216	50	8	67	3.9	3.2
		29%	29%	26%	6%	1%	8%	78%	64%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	190	244	236	64	16	66	3.7	2.9
		23%	30%	29%	8%	2%	8%	74%	58%
12	Ability to use computing technology in communications.	224	251	204	54	15	68	3.8	3.2
		27%	31%	25%	7%	2%	8%	76%	64%
13	Ability to use computing technology in engineering analysis/design.	204	256	221	63	7	65	3.8	3.1
		25%	31%	27%	8%	1%	8%	76%	62%
14	Ability to use state of the art techniques, and tools in engineering practice.	177	232	238	77	19	73	3.6	2.8
		22%	28%	29%	9%	2%	9%	72%	56%
15	Apply the knowledge of probability and statistics.	161	218	248	99	20	70	3.5	2.5
		20%	27%	30%	12%	2%	9%	70%	50%

Table 4 Assessment of the outcomes (according to the 2019-2020 cycle ABET updates) acquired at Kuwait University – Engineering programs

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 76%	3.2 64%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.7 74%	3.0 60%
3	an ability to communicate effectively with a range of audiences	3.9 77%	3 63%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 77%	3.2 64%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4 80%	3.5 70%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.7 74%	3.0 60%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.2 64%

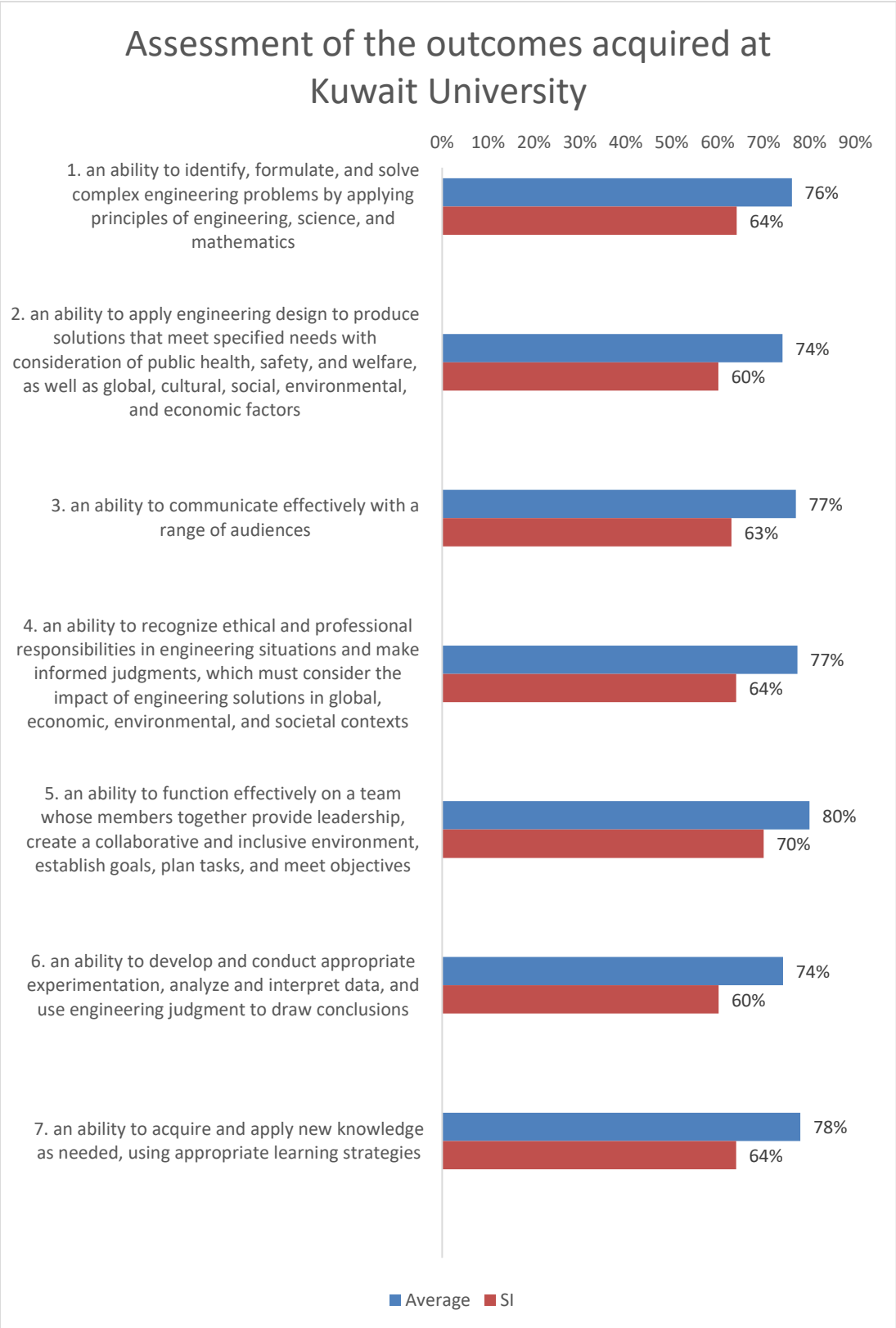

Figure 1 Assessment of the outcomes acquired at Kuwait University

Table 5 Assessment of the learning environment at Kuwait University - Engineering programs

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	143	170	225	108	100	70	3.2	2.1
		18%	21%	28%	13%	12%	9%	64%	42%
2	- Computers (Programming and usage of software packages)	115	175	278	129	50	69	3.2	1.9
		14%	21%	34%	16%	6%	8%	64%	38%
3	- Humanities and Social sciences	114	205	294	86	31	86	3.4	2.2
		14%	25%	36%	11%	4%	11%	68%	44%
4	- General Engineering	167	254	244	66	20	65	3.6	2.8
		20%	31%	30%	8%	2%	8%	72%	56%
5	- Engineering within major	216	258	213	53	13	63	3.8	3.1
		26%	32%	26%	6%	2%	8%	76%	62%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		138	203	282	89	24	80	3.5	2.3
		17%	25%	35%	11%	3%	10%	70%	46%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	8	90	91	37	12	35	3.6	2.7
		20%	27%	27%	11%	4%	11%	72%	54%
8	- Career planning	54	89	90	46	16	38	3.4	2.4
		16%	27%	27%	14%	5%	11%	68%	48%
D. Equity of treatment by:									
9	- Academic administrators	148	206	275	86	29	72	3.5	2.4
		18%	25%	34%	11%	4%	9%	70%	48%
10	- Faculty	140	216	275	92	24	69	3.5	2.4
		17%	26%	34%	11%	3%	8%	70%	48%
11	- Teaching assistants and engineers	163	198	279	85	21	70	3.5	2.4
		20%	24%	34%	10%	3%	9%	70%	48%
12	- Fellow students	143	203	276	94	30	70	3.4	2.3
		18%	25%	34%	12%	4%	9%	68%	46%
E. Quality of the facilities:									
13	- Classrooms	71	115	241	147	167	75	2.7	1.3
		9%	14%	30%	18%	20%	9%	54%	26%
14	- Science laboratories	67	127	234	175	138	75	2.7	1.3
		8%	16%	29%	21%	17%	9%	54%	26%
15	- Engineering Laboratories	73	135	222	167	145	74	2.8	1.4
		9%	17%	27%	20%	18%	9%	56%	28%
16	- Computing facilities	84	118	241	169	131	73	2.8	1.4
		10%	14%	30%	21%	16%	9%	56%	28%
17	- Libraries	122	178	246	120	77	73	3.2	2
		15%	22%	30%	15%	9%	9%	64%	40%

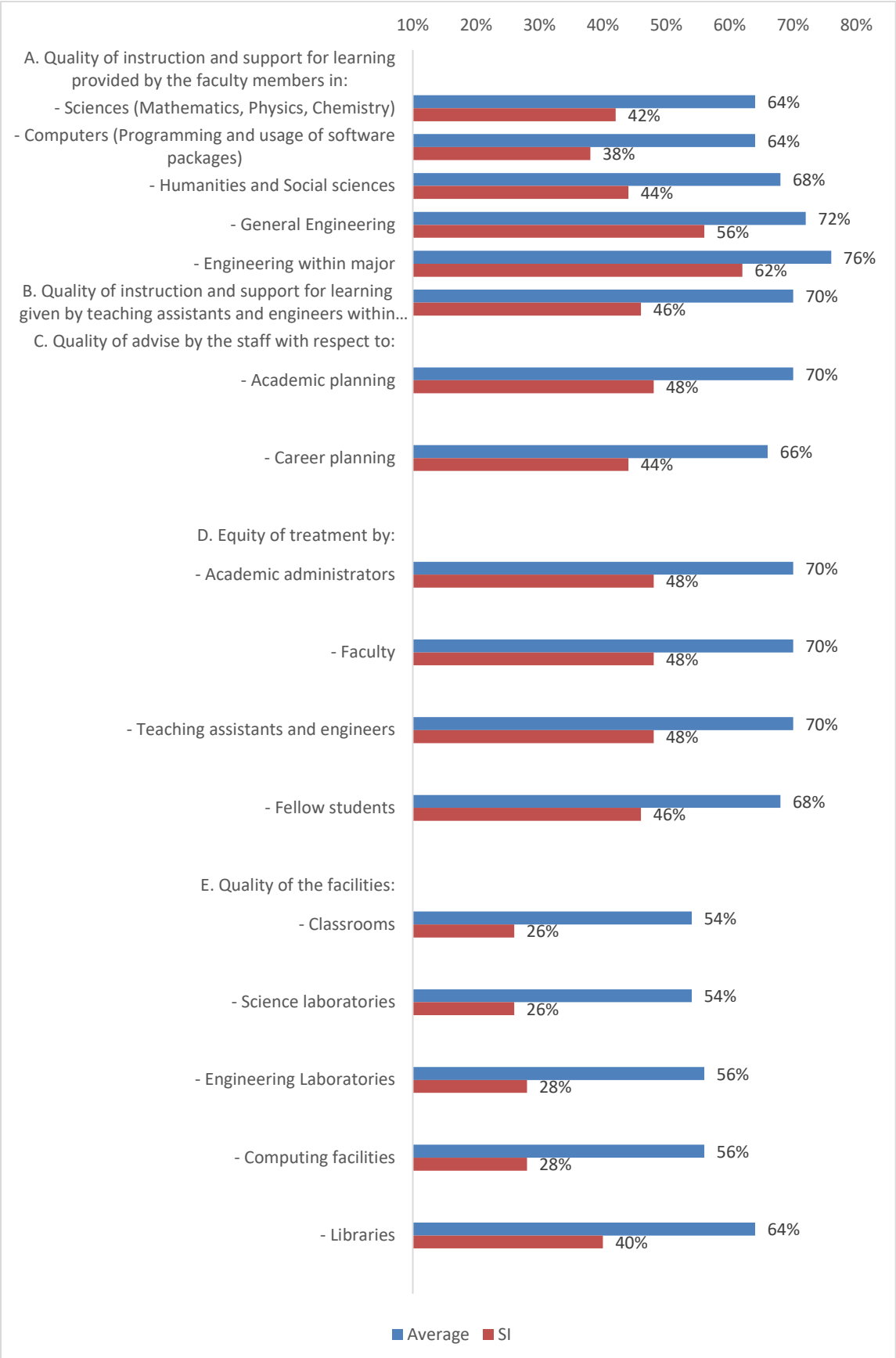

Figure 2 Assessment of the learning environment at Kuwait University

Table 6 Assessment of the support services at Kuwait University – Engineering programs

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	113	232	180	129	77	85	3.2	2.4	250	374	136
		14%	28%	22%	16%	9%	10%	64%	48%	31%	46%	17%
2	Training office	130	261	195	62	32	136	3.6	2.9	162	420	178
		16%	32%	24%	8%	4%	17%	72%	58%	20%	51%	22%
3	Libraries	143	301	183	67	33	89	3.6	3.1	228	418	114
		18%	37%	22%	8%	4%	11%	72%	62%	28%	51%	14%
4	Bookstores	116	256	212	77	46	109	3.5	2.6	191	429	140
		14%	31%	26%	9%	6%	13%	70%	52%	23%	53%	17%
B. Administrative Offices:												
5	Students affairs office in your department	141	246	211	63	30	125	3.6	2.8	209	412	139
		17%	30%	26%	8%	4%	15%	72%	56%	26%	50%	17%
6	Administrative offices in the college	139	246	226	57	22	126	3.6	2.8	186	425	149
		17%	30%	28%	7%	3%	15%	72%	56%	23%	52%	18%
C. Other Services:												
7	Health services	112	216	180	84	52	172	3.4	2.5	154	376	230
		14%	26%	22%	10%	6%	21%	68%	50%	19%	46%	28%
8	Food services	74	179	184	162	136	81	2.9	1.7	251	371	138
		9%	22%	23%	20%	17%	10%	58%	34%	31%	45%	17%
9	Parking	47	72	86	139	353	119	2	0.9	290	273	197
		6%	9%	11%	17%	43%	15%	40%	18%	36%	33%	24%
10	Recreation and athletics	62	128	136	112	168	210	2.7	1.6	128	338	294
		8%	16%	17%	14%	21%	26%	54%	32%	16%	41%	36%
11	Others	64	91	94	65	60	442	3.1	2.1	121	262	200
		8%	11%	12%	8%	7%	54%	62%	42%	15%	32%	25%

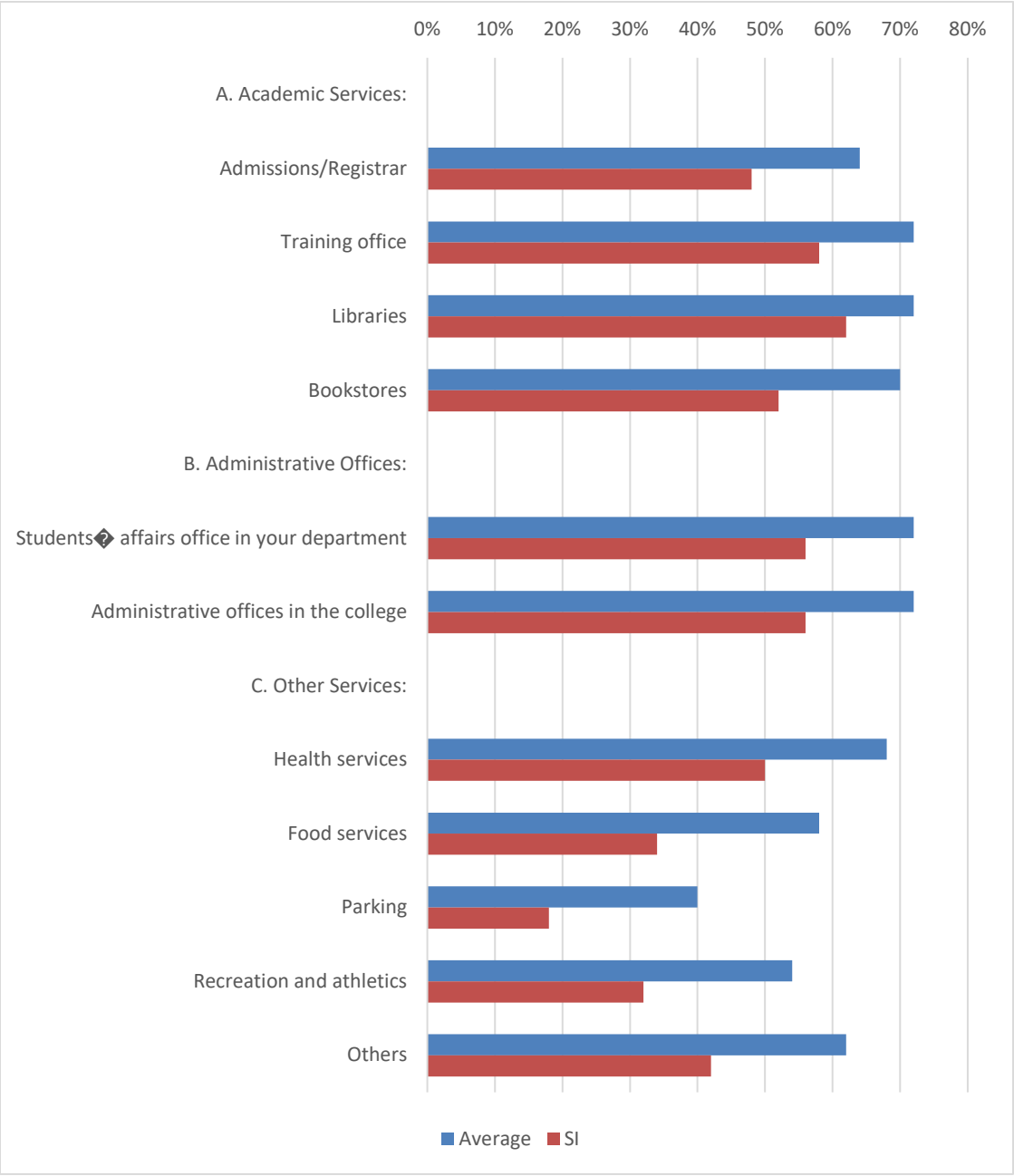

Figure 3 Assessment of the support services at Kuwait University

Table 7 Differences among engineering departments – outcomes

#	Outcomes		Chemical	Civil	Computer	Electrical	mse	Mechanical	Petroleum	College
1	Apply knowledge of mathematics, physics and engineering.	Average Rating	82%	78%	72%	78%	78%	80%	86%	80%
		Satisfaction Index	78%	68%	60%	66%	66%	76%	82%	70%
2	Design and conduct experiments, as well as to analyze and interpret data.	Average Rating	80%	74%	72%	74%	76%	70%	82%	76%
		Satisfaction Index	76%	60%	54%	60%	66%	46%	76%	62%
3	Design a system, component, or process to meet desired needs.	Average Rating	78%	72%	74%	76%	74%	72%	76%	74%
		Satisfaction Index	72%	54%	62%	60%	62%	50%	58%	60%
4	Function effectively in teams.	Average Rating	80%	78%	76%	78%	80%	80%	84%	80%
		Satisfaction Index	74%	66%	68%	66%	72%	68%	78%	70%
5	Identify, formulate, and solve engineering problems.	Average Rating	78%	78%	74%	76%	78%	76%	86%	78%
		Satisfaction Index	72%	70%	66%	66%	68%	64%	80%	70%
6	Understand professional and ethical responsibilities. (e.g. safety, professional ethics, code of conduct).	Average Rating	80%	78%	78%	78%	78%	78%	84%	80%
		Satisfaction Index	70%	66%	70%	64%	62%	72%	80%	68%
7	Communicate effectively (written reports).	Average Rating	80%	74%	78%	76%	72%	76%	84%	78%
		Satisfaction Index	74%	56%	74%	62%	54%	56%	82%	64%
8	Communicate effectively (oral presentations).	Average Rating	74%	72%	72%	78%	74%	68%	84%	76%
		Satisfaction Index	64%	56%	58%	64%	56%	46%	80%	62%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	Average Rating	78%	78%	76%	76%	82%	76%	82%	78%
		Satisfaction Index	66%	66%	64%	60%	68%	64%	76%	66%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	Average Rating	76%	80%	78%	76%	76%	76%	82%	78%
		Satisfaction Index	62%	68%	62%	58%	60%	60%	74%	64%

11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	Average Rating	76%	78%	70%	72%	72%	68%	80%	74%
		Satisfaction Index	64%	66%	50%	48%	54%	46%	72%	58%
12	Ability to use computing technology in communications.	Average Rating	78%	78%	76%	76%	74%	72%	80%	76%
		Satisfaction Index	66%	64%	68%	58%	60%	60%	72%	64%
13	Ability to use computing technology in engineering analysis/design.	Average Rating	76%	74%	74%	76%	74%	72%	80%	76%
		Satisfaction Index	66%	60%	54%	58%	62%	58%	70%	62%
14	Ability to use state of the art techniques, and tools in engineering practice.	Average Rating	74%	72%	70%	74%	72%	68%	76%	72%
		Satisfaction Index	58%	56%	58%	50%	50%	50%	66%	56%
15	Apply the knowledge of probability and statistics.	Average Rating	70%	72%	62%	72%	80%	64%	74%	70%
		Satisfaction Index	48%	50%	32%	50%	70%	44%	60%	50%

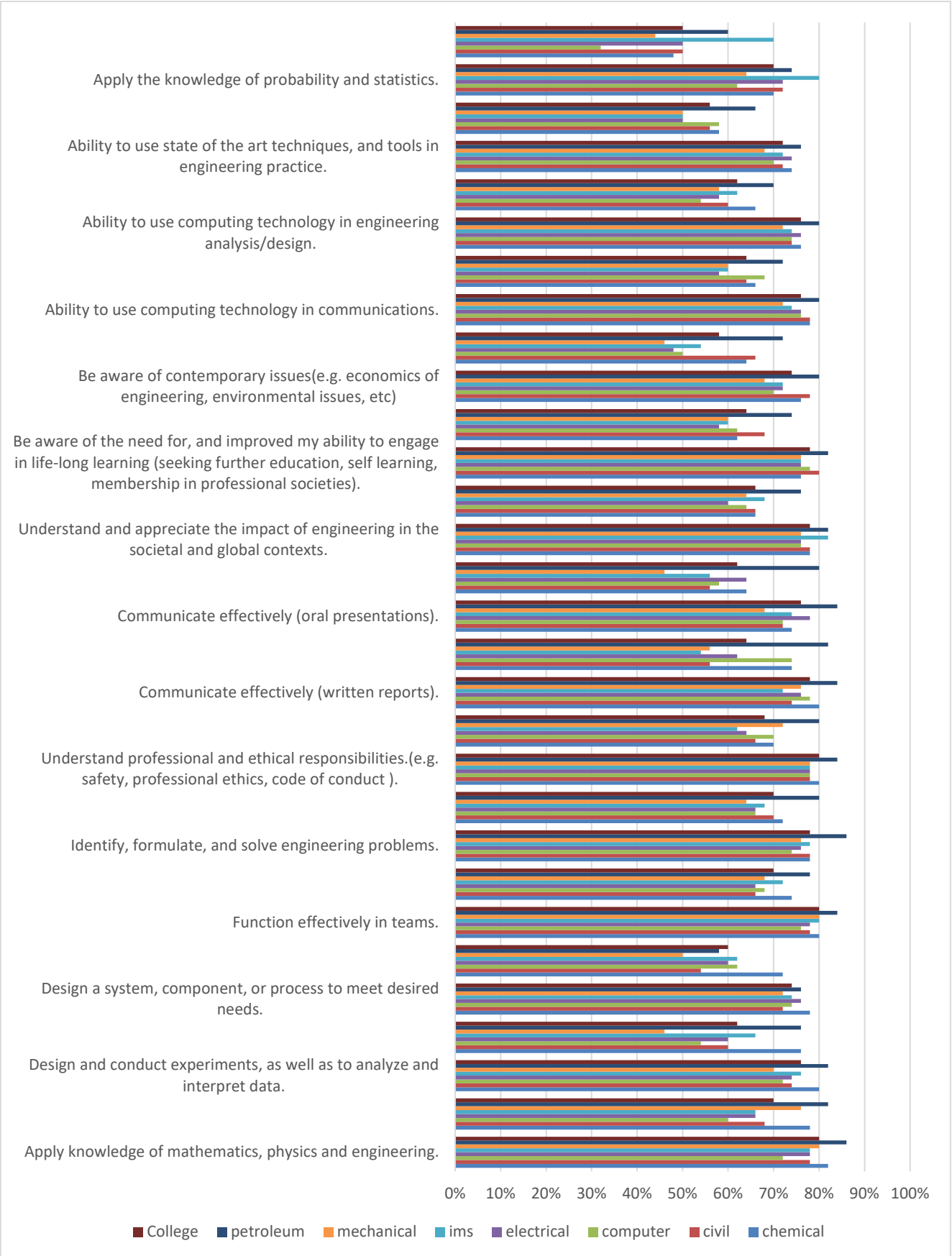

Figure 4 Differences among engineering departments – outcomes

Table 8 Differences among departments – Learning environment

#	Outcomes		chemical	civil	computer	electrical	imse	mechanical	petroleum	College
A. Quality of instruction and support for learning provided by the faculty members in:										
1	- Sciences (Mathematics, Physics, Chemistry)	Average Rating	62%	64%	48%	68%	52%	68%	72%	64%
		Satisfaction Index	38%	44%	20%	48%	22%	52%	54%	42%
2	- Computers (Programming and usage of software packages)	Average Rating	62%	64%	72%	68%	56%	62%	66%	64%
		Satisfaction Index	34%	34%	54%	46%	20%	36%	38%	38%
3	- Humanities and Social sciences	Average Rating	70%	68%	68%	68%	60%	64%	70%	68%
		Satisfaction Index	46%	44%	40%	48%	30%	32%	50%	44%
4	- General Engineering	Average Rating	78%	74%	62%	74%	64%	72%	78%	72%
		Satisfaction Index	64%	60%	34%	58%	36%	56%	64%	56%
5	- Engineering within major	Average Rating	76%	76%	72%	76%	76%	76%	80%	76%
		Satisfaction Index	64%	60%	56%	62%	66%	62%	72%	62%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		Average Rating	72%	68%	62%	70%	62%	70%	74%	70%
		Satisfaction Index	50%	40%	38%	48%	36%	48%	58%	46%
C. Quality of advice by the staff with respect to:										
7	- Academic planning	Average Rating	72%	68%	64%	70%	64%	72%	72%	70%
		Satisfaction Index	50%	48%	42%	46%	36%	52%	58%	48%
8	- Career planning	Average Rating	70%	66%	60%	68%	56%	64%	70%	66%
		Satisfaction Index	48%	44%	34%	46%	20%	44%	54%	44%
D. Equity of treatment by:										
9	- Academic administrators	Average Rating	72%	70%	66%	68%	64%	70%	74%	70%
		Satisfaction Index	54%	48%	44%	46%	40%	46%	52%	48%
10	- Faculty	Average Rating	74%	70%	66%	68%	64%	66%	74%	70%
		Satisfaction Index	60%	50%	42%	44%	38%	40%	52%	48%
11	- Teaching assistants and engineers	Average Rating	74%	72%	66%	70%	62%	70%	74%	70%
		Satisfaction Index	58%	52%	38%	46%	36%	48%	52%	48%

12	- Fellow students	Average Rating	66%	74%	66%	68%	66%	66%	74%	68%
		Satisfaction Index	42%	56%	38%	42%	38%	42%	54%	46%
E. Quality of the facilities:										
13	- Classrooms	Average Rating	58%	54%	46%	58%	44%	54%	54%	54%
		Satisfaction Index	30%	28%	16%	28%	14%	22%	22%	26%
14	- Science laboratories	Average Rating	56%	56%	48%	58%	48%	50%	56%	54%
		Satisfaction Index	28%	26%	18%	30%	18%	22%	28%	26%
15	- Engineering Laboratories	Average Rating	58%	56%	50%	58%	50%	44%	60%	56%
		Satisfaction Index	32%	30%	20%	30%	22%	22%	30%	28%
16	- Computing facilities	Average Rating	58%	54%	52%	60%	50%	50%	60%	56%
		Satisfaction Index	30%	26%	26%	32%	10%	18%	32%	28%
17	- Libraries	Average Rating	68%	62%	64%	66%	56%	60%	68%	64%
		Satisfaction Index	48%	34%	42%	42%	32%	34%	46%	40%

Figure 5 Differences among departments – Learning environment

Cont. Figure 5 Differences among departments – Learning environment

Table 9 Differences among departments – Support services

#	Outcomes		chemical	civil	computer	electrical	imse	mechanical	petroleum	College
A. Academic Services:										
1	Admissions/Registrar	Average Rating	66%	64%	56%	64%	60%	70%	70%	64%
		Satisfaction Index	50%	44%	36%	50%	38%	54%	56%	48%
2	Training office	Average Rating	76%	72%	60%	72%	68%	72%	74%	72%
		Satisfaction Index	66%	58%	32%	58%	52%	50%	68%	58%
3	Libraries	Average Rating	74%	72%	70%	74%	72%	70%	76%	72%
		Satisfaction Index	60%	62%	58%	62%	58%	56%	68%	62%
4	Bookstores	Average Rating	70%	70%	64%	70%	64%	64%	74%	70%
		Satisfaction Index	52%	54%	46%	54%	44%	40%	66%	52%
B. Administrative Offices:										
5	Students affairs office in your department	Average Rating	74%	74%	66%	70%	72%	74%	72%	72%
		Satisfaction Index	66%	60%	40%	52%	58%	56%	58%	56%
6	Administrative offices in the college	Average Rating	74%	72%	66%	74%	68%	72%	74%	72%
		Satisfaction Index	64%	56%	40%	56%	54%	54%	58%	56%
C. Other Services:										
7	Health services	Average Rating	68%	68%	62%	70%	66%	68%	68%	68%
		Satisfaction Index	52%	52%	40%	52%	44%	48%	56%	50%
8	Food services	Average Rating	58%	58%	48%	58%	56%	56%	58%	58%
		Satisfaction Index	36%	38%	20%	36%	28%	34%	38%	34%
9	Parking	Average Rating	42%	42%	32%	44%	32%	40%	42%	40%
		Satisfaction Index	20%	18%	8%	20%	8%	16%	18%	18%
10	Recreation and athletics	Average Rating	56%	54%	44%	56%	46%	52%	54%	54%
		Satisfaction Index	32%	34%	18%	32%	16%	30%	40%	32%
11	Others	Average Rating	66%	62%	54%	62%	60%	56%	64%	62%
		Satisfaction Index	56%	42%	28%	38%	26%	36%	46%	42%

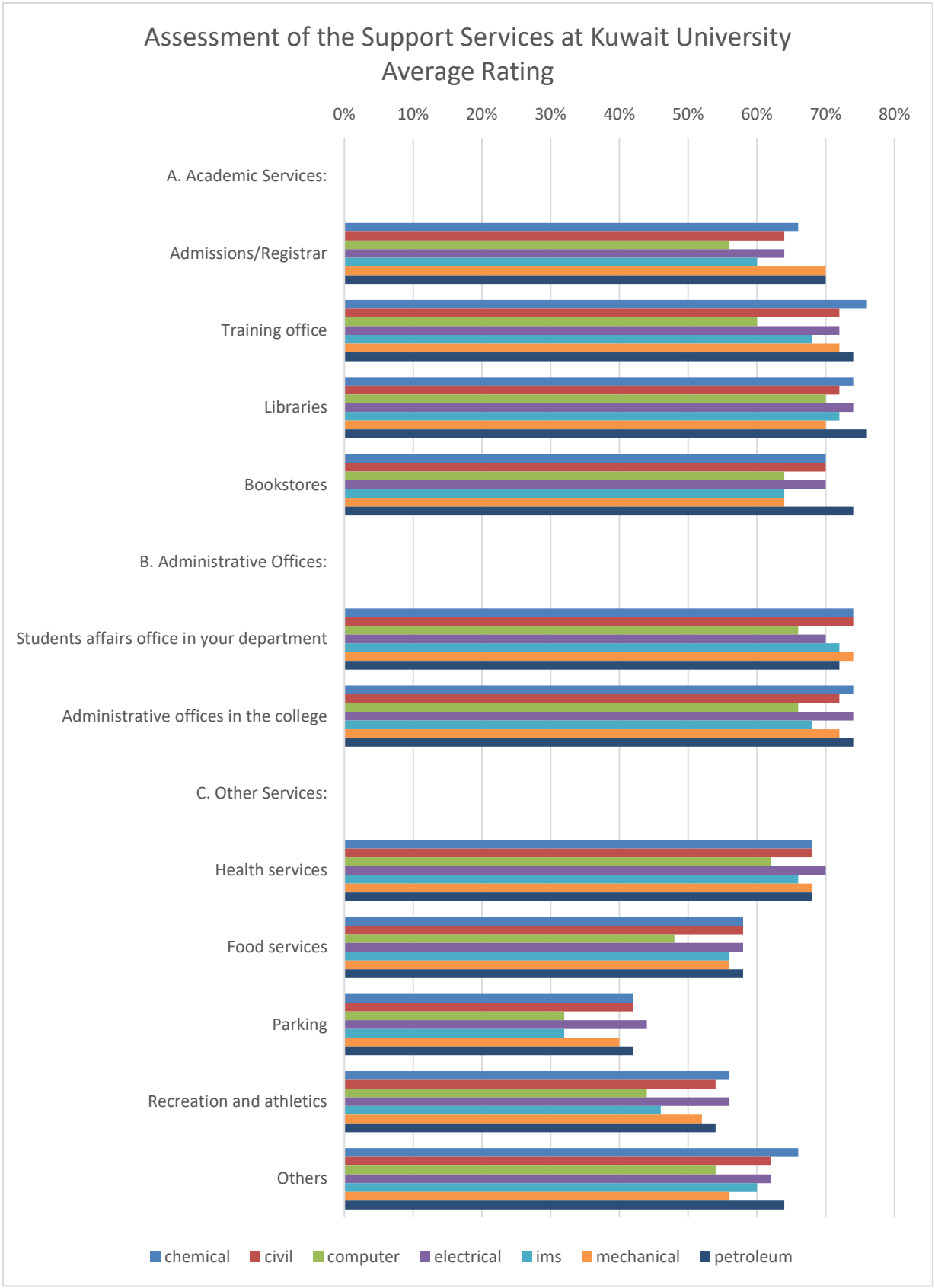

Figure 6 Differences among departments – Support services

Exit Survey Form

Kuwait University

College of Engineering & Petroleum

Office of Academic Assessment

EXIT SURVEY FORM

P.O. Box 5969, Safat 13060, Kuwait http://www.eng.kuniv.edu/oaa/ *Tel: 4811188-5868, Fax: 4811772*

The faculty and students of Kuwait University are dedicated to the continuous improvement of undergraduate engineering programs. The information that you provide through this survey will be very helpful in this process. We appreciate your help in filling out this survey. Thank you for your cooperation and support.

Engineering major**:**

☐ Civil ☐ Chemical ☐ Computer ☐ Electrical

☐ Petroleum ☐ Mechanical ☐ Industrial & Management Systems

Name (optional):_____ Gender: ☐ M ☐ F

Year of Graduation: _____

Overall GPA: _____

Future plans (check all that apply)

☐ I intend to work in the government sector.

☐ I intend to work in the private sector.

☐ I intend to go to graduate school.

☐ I intend to start my own business.

☐ I intend to do other things (please specify): _____

Please fill in the tables in the next pages concerning the skills, abilities and attributes that you have acquired while studying Engineering at Kuwait University.

1. Assessment of Abilities, Skills and Attributes Acquired at Kuwait University.

Please rate each of the following skills, abilities or attributes in terms of how well your education at Kuwait University prepared you for them.

Skills, abilities, and attributes	*Level of preparation*					
	Very well	*Well prepared*	*Prepared*	*Somewhat*	*Not prepared*	*Can't evaluate*
1. Apply knowledge of mathematics, physics and engineering.	☐	☐	☐	☐	☐	☐
2. Design and conduct experiments, as well as to analyze and interpret data.	☐	☐	☐	☐	☐	☐
3. Design a system, component, or process to meet desired needs.	☐	☐	☐	☐	☐	☐
4. Function effectively in teams.	☐	☐	☐	☐	☐	☐
5. Identify, formulate, and solve engineering problems.	☐	☐	☐	☐	☐	☐
6. Understand professional and ethical responsibilities. ***(e.g. safety, professional ethics, code of conduct).***	☐	☐	☐	☐	☐	☐
7. Communicate effectively (written reports).	☐	☐	☐	☐	☐	☐
8. Communicate effectively (oral presentations).	☐	☐	☐	☐	☐	☐
9. Understand and appreciate the impact of engineering in the societal and global contexts.	☐	☐	☐	☐	☐	☐
10. Be aware of the need for, and improve my ability to engage in life-long learning ***(seeking further education, self-learning, membership in professional societies).***	☐	☐	☐	☐	☐	☐
11. Be aware of contemporary issues ***(e.g. economics of engineering, environmental issues, etc…)***	☐	☐	☐	☐	☐	☐
12. Ability to use computing technology in communications.	☐	☐	☐	☐	☐	☐
13. Ability to use computing technology in engineering analysis/design	☐	☐	☐	☐	☐	☐
14. Ability to use state of the art techniques, and tools in engineering practice.	☐	☐	☐	☐	☐	☐
15. Apply the knowledge of probability and statistics.	☐	☐	☐	☐	☐	☐

2. Assessment of the Learning Environment at Kuwait University

Please indicate your satisfaction with each of the following aspects of your experience at Kuwait University.

	Level of satisfaction					
	Extremely satisfied	*Very satisfied*	*Satisfied*	*Somewhat satisfied*	*Not satisfied*	*Can't evaluate*
A. Quality of instruction and support for learning provided by the faculty members in:						
- Sciences (Mathematics, Physics, Chemistry)	☐	☐	☐	☐	☐	☐
- Computers (Programming and usage of software packages)	☐	☐	☐	☐	☐	☐
- Humanities and Social sciences	☐	☐	☐	☐	☐	☐
- General Engineering,	☐	☐	☐	☐	☐	☐
- Engineering within major	☐	☐	☐	☐	☐	☐
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.	☐	☐	☐	☐	☐	☐
C. Quality of advice by the staff with respect to:						
- Academic planning	☐	☐	☐	☐	☐	☐
- Career planning	☐	☐	☐	☐	☐	☐
D. Equity of treatment by:						
- Academic administrators	☐	☐	☐	☐	☐	☐
- Faculty	☐	☐	☐	☐	☐	☐

- Teaching assistants and engineers ☐ ☐ ☐ ☐ ☐ ☐

- Fellow students ☐ ☐ ☐ ☐ ☐ ☐

E. Quality of the facilities:

- Classrooms ☐ ☐ ☐ ☐ ☐ ☐

- Science laboratories ☐ ☐ ☐ ☐ ☐ ☐

- Engineering Laboratories ☐ ☐ ☐ ☐ ☐ ☐

- Computing facilities ☐ ☐ ☐ ☐ ☐ ☐

- Libraries ☐ ☐ ☐ ☐ ☐ ☐

3. Assessment of Support Services

Please rate the quality of services provided by the listed offices. In addition, please indicate the amount of interaction that you had with each office.

	Quality of services						*Amount of interaction*		
	Very good	*Good*	*Adequate*	*Poor*	*Very poor*	*No opinion*	*Much*	*Some*	*Little or none*
A. Academic Services:									
Admissions/Registrar	☐	☐	☐	☐	☐	☐	☐	☐	☐
Training office	☐	☐	☐	☐	☐	☐	☐	☐	☐
Libraries	☐	☐	☐	☐	☐	☐	☐	☐	☐
Bookstores	☐	☐	☐	☐	☐	☐	☐	☐	☐
B. Administrative Offices:									
Students' affairs office in your department	☐	☐	☐	☐	☐	☐	☐	☐	☐

Administrative offices in the college	☐	☐	☐	☐	☐	☐		☐	☐	☐

C. Other Services:

Health services	☐	☐	☐	☐	☐	☐		☐	☐	☐
Food services	☐	☐	☐	☐	☐	☐		☐	☐	☐
Parking	☐	☐	☐	☐	☐	☐		☐	☐	☐
Recreation and athletics	☐	☐	☐	☐	☐	☐		☐	☐	☐
Others (specify) _____	☐	☐	☐	☐	☐	☐		☐	☐	☐

4. General Assessment

Please answer the following questions:

A. Please list some very important skills that you think you had learned in the engineering program.

_____

_____

_____

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

_____

_____

_____

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary).

_____

_____

_____

Chemical Engineering Program
Exit Survey Results

For the Academic year 2017-2018

October 2018

CHEMICAL ENGINEERING VISION & MISSION

Mission

The Mission Statement of the Chemical Engineering Department is to produce chemical engineers capable of meeting the technological and societal needs of Kuwait and the Gulf region.

This mission is fulfilled by providing a broad curriculum in the basic sciences, process systems and design, unit operations, and in modern experimental and computing techniques. The program strives for academic excellence through continual assessment of the outcomes. The focus is on petroleum and petrochemical technology, environmental engineering, and water technology.

Vision

The Chemical Engineering Department strives for regional and international recognition in teaching, research and community service. It enriches the standard of engineering education, continually enhances the quality and competence of graduated students, and stimulates outstanding research activities that contribute to the advancement of the chemical engineering profession and the development of local and regional industry.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

Graduates of the Undergraduate Program in Chemical Engineering will

1. Be productive in their chosen careers in the public and private sectors; especially in the fields of oil refining, petrochemicals, and water desalination and treatment.
2. Advance in responsibility and leadership in their careers and engage in ongoing professional development by successfully pursuing graduate studies and/or other learning activities; and
3. Contribute to the welfare of society by directing their skills and technical expertise toward addressing the needs of the community and the environment

Student Outcomes

The Chemical Engineering Program provides an integrated curriculum enabling students to develop skills and attitudes that are essential to their future successful career. The Program will ensure that its engineers can demonstrate the following capabilities:

a. Apply basic mathematics and science to solve engineering problems.
b. Design and conduct laboratory experiments, and interpret results.
c. Design and analyze chemical processes.
d. Participate effectively in teamwork.
e. Identify, formulate, and solve engineering problems.
f. Recognize and conform to highest professional and ethical standards.
g. Communicate effectively in oral and written form.
h. Recognize the impact of engineering solutions on the society and the environment.
i. Recognize the need for life-long learning.
j. Awareness of contemporary social, economic and political issues.
k. Proficiency in utilizing modern engineering tools.
l. Competence in tackling chemical/process engineering problems that are important to Kuwait and regional industries.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Chemical Engineering**

*** Number of Students participated in the survey:**

116	Male	39	34%
	Female	70	60%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	71	61%
Intend to work in the private sector.	58	50%
Intend to go to graduate school.	23	20%
Intend to start my own business	20	17%
Intend to do other things	4	3%
continue studying		
obtain master and PHD degree		
Be a doctor		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

*** Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	34	50	23	1	0	8	4.1	3.9
		29%	43%	20%	1%	0%	7%	82%	78%
2	Design and conduct experiments, as well as to analyze and interpret data.	27	55	20	5	0	9	4	3.8
		23%	47%	17%	4%	0%	8%	80%	76%
3	Design a system, component, or process to meet desired needs.	30	47	25	3	3	8	3.9	3.6
		26%	41%	22%	3%	3%	7%	78%	72%
4	Function effectively in teams.	41	38	22	6	1	8	4	3.7
		35%	33%	19%	5%	1%	7%	80%	74%
5	Identify, formulate, and solve engineering problems.	32	46	23	6	1	8	3.9	3.6
		28%	40%	20%	5%	1%	7%	78%	72%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	40	35	26	6	1	8	4	3.5
		34%	30%	22%	5%	1%	7%	80%	70%
7	Communicate effectively (written reports).	37	42	25	4	0	8	4	3.7
		32%	36%	22%	3%	0%	7%	80%	74%
8	Communicate effectively (oral presentations).	24	45	25	11	2	9	3.7	3.2
		21%	39%	22%	9%	2%	8%	74%	64%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	31	40	29	6	1	9	3.9	3.3
		27%	34%	25%	5%	1%	8%	78%	66%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	33	34	32	9	0	8	3.8	3.1
		28%	29%	28%	8%	0%	7%	76%	62%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc)	25	45	29	8	1	8	3.8	3.2
		22%	39%	25%	7%	1%	7%	76%	64%
12	Ability to use computing technology in communications.	38	34	25	6	5	8	3.9	3.3
		33%	29%	22%	5%	4%	7%	78%	66%
13	Ability to use computing technology in engineering analysis/design.	35	37	25	6	5	8	3.8	3.3
		30%	32%	22%	5%	4%	7%	76%	66%
14	Ability to use state of the art techniques, and tools in engineering practice.	28	35	32	6	6	9	3.7	2.9
		24%	30%	28%	5%	5%	8%	74%	58%
15	Apply the knowledge of probability and statistics.	20	31	36	14	4	11	3.5	2.4
		17%	27%	31%	12%	3%	9%	70%	48%
16	Competence in tackling Chemical/process engineering problems that are important to local and regional industries.	34	40	27	5	2	8	3.9	3.4
		29%	34%	23%	4%	2%	7%	78%	68%

Table 2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 77%	**3.3** **67%**
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.9 78%	**3.5** **70%**
3	an ability to communicate effectively with a range of audiences	3.9 77%	3.5 69%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 78%	**3.3** **67%**
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.0 80%	3.7 74%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.9 77%	**3.5** **69%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	3.1 62%

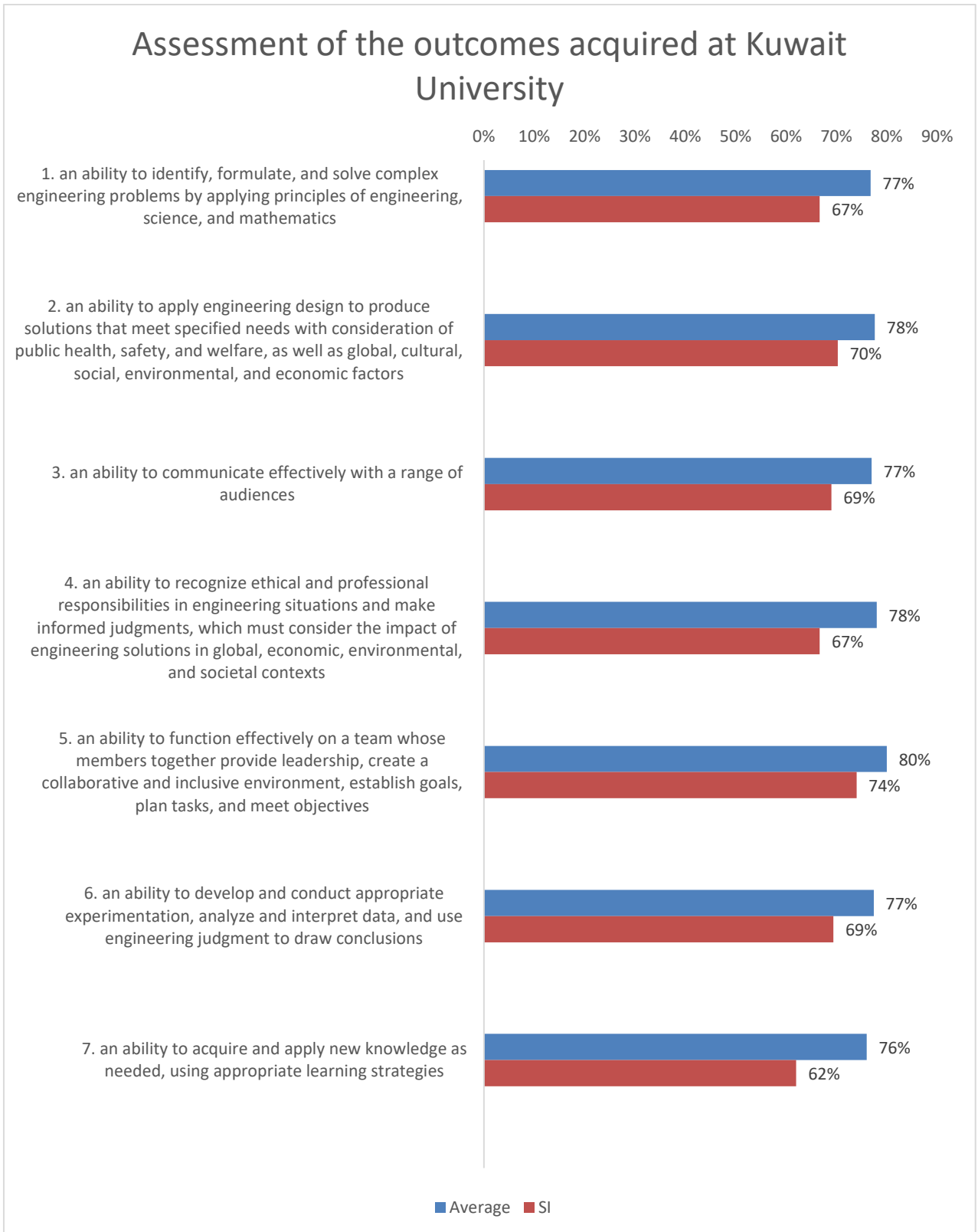
Assessment of the outcomes acquired at Kuwait University
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
77%
67%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
78%
70%
3. an ability to communicate effectively with a range of audiences
77%
69%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
78%
67%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
80%
74%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
77%
69%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
76%
62%
Average
SI

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	18	22	35	12	19	10	3.1	1.9
		16%	19%	30%	10%	16%	9%	62%	38%
2	- Computers (Programming and usage of software packages)	19	18	40	19	11	9	3.1	1.7
		16%	16%	34%	16%	9%	8%	62%	34%
3	- Humanities and Social sciences	22	26	42	11	4	11	3.5	2.3
		19%	22%	36%	9%	3%	9%	70%	46%
4	- General Engineering	31	39	31	6	1	8	3.9	3.2
		27%	34%	27%	5%	1%	7%	78%	64%
5	- Engineering within major	27	43	30	8	0	8	3.8	3.2
		23%	37%	26%	7%	0%	7%	76%	64%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		24	30	41	10	1	10	3.6	2.5
		21%	26%	35%	9%	1%	9%	72%	50%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	27	26	39	11	2	11	3.6	2.5
		23%	22%	34%	9%	2%	9%	72%	50%
8	- Career planning	20	30	34	16	3	13	3.5	2.4
		17%	26%	29%	14%	3%	11%	70%	48%
D. Equity of treatment by:									
9	- Academic administrators	26	30	33	14	2	11	3.6	2.7
		22%	26%	28%	12%	2%	9%	72%	54%
10	- Faculty	27	35	30	11	1	12	3.7	3
		23%	30%	26%	9%	1%	10%	74%	60%
11	- Teaching assistants and engineers	30	31	30	12	1	12	3.7	2.9
		26%	27%	26%	10%	1%	10%	74%	58%
12	- Fellow students	21	23	38	16	8	10	3.3	2.1
		18%	20%	33%	14%	7%	9%	66%	42%
E. Quality of the facilities:									
13	- Classrooms	12	20	37	16	20	11	2.9	1.5
		10%	17%	32%	14%	17%	9%	58%	30%
14	- Science laboratories	11	20	32	25	19	9	2.8	1.4
		9%	17%	28%	22%	16%	8%	56%	28%
15	- Engineering Laboratories	10	24	33	22	18	9	2.9	1.6
		9%	21%	28%	19%	16%	8%	58%	32%
16	- Computing facilities	11	22	35	24	15	9	2.9	1.5
		9%	19%	30%	21%	13%	8%	58%	30%
17	- Libraries	21	29	32	13	10	11	3.4	2.4
		18%	25%	28%	11%	9%	9%	68%	48%

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	22	31	25	16	12	10	3.3	2.5	31	58	20
		19%	27%	22%	14%	10%	9%	66%	50%	27%	50%	17%
2	Training office	28	38	22	7	5	16	3.8	3.3	16	73	20
		24%	33%	19%	6%	4%	14%	76%	66%	14%	63%	17%
3	Libraries	25	38	30	9	4	10	3.7	3	33	62	14
		22%	33%	26%	8%	3%	9%	74%	60%	28%	53%	12%
4	Bookstores	21	32	31	11	8	13	3.5	2.6	19	69	21
		18%	28%	27%	9%	7%	11%	70%	52%	16%	59%	18%
B. Administrative Offices:												
5	Students affairs office in your department	19	43	22	7	4	21	3.7	3.3	25	59	25
		16%	37%	19%	6%	3%	18%	74%	66%	22%	51%	22%
6	Administrative offices in the college	23	39	25	7	3	19	3.7	3.2	23	64	22
		20%	34%	22%	6%	3%	16%	74%	64%	20%	55%	19%
C. Other Services:												
7	Health services	15	31	25	8	9	28	3.4	2.6	17	54	38
		13%	27%	22%	7%	8%	24%	68%	52%	15%	47%	33%
8	Food services	6	33	27	22	19	9	2.9	1.8	32	60	17
		5%	28%	23%	19%	16%	8%	58%	36%	28%	52%	15%
9	Parking	8	12	10	19	48	19	2.1	1	34	51	24
		7%	10%	9%	16%	41%	16%	42%	20%	29%	44%	21%
10	Recreation and athletics	12	15	23	10	22	34	2.8	1.6	11	56	42
		10%	13%	20%	9%	19%	29%	56%	32%	9%	48%	36%
11	Others	13	19	10	4	11	59	3.3	2.8	18	40	29
		11%	16%	9%	3%	9%	51%	66%	56%	16%	34%	25%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

I had learned a design equipment skills from plant design subject , writing reports , oral presentation and solving engineering problems through my whole courses at Kuwait University.

---

communicating, presentation and analysis skills.

Apply engineering in my life

---

engineering skills, communication skills

---

work better with a group

---

engineering is not just a major its a lifestyle

---

patience

I learned how to communication with people and how to study with them

---

study with groups

Working better under pressure

---

self-reliance

---

some of the important skills : time Management Techniques, study Skills (or Learning How to Learn),being confidence while presenting a project and to work with a team.

---

working in team

Mathmatics,physics and engineering

Communication, designing, using various programs, and speaking.

---

teamwork, effectively communicating with faculty members and students, engineering sense and way of thinking.

---

you shouldn't work with high grade student with poor team skills. learning is not self dependence

---

I acquired the skill to work efficiently under pressure/ I became excellent at conducting research and writing technical reports.

I have learned how to construct and design processes.

---

think out of the box. try to solve problems from different angles. try to minimize the cost of plant while maximize the profit, while taking environmental issues in to consideration

---

no thing

I learned how to use many programs such as HYSYS, Polymath, Matlab, Autocad and C++.

---

oral presentations

Learned how to think in solving problems in general way , learned how to be patient ,and finally the ability to interact with others fearlessly .

---

1. The ability to write reports effectively. 2. The ability to design and conduct experiments as well as to analyze and interpret data 3. The ability to work in groups

---

I learned how to think out of the box.

---

communication skills, and report writing

---

i have leaned how to use hysys program verey well

I learned how to study the economics of any plant

Excell, hysys and applying hurestics of engineering bible

---

never give up and try hard ride the wave

If you work hard you will get sh*t done no matter the obstacles.

I learned how to manage any project

---

i learn will how to be dependent person and how to study will

---

patience

It was amazing and interesting

I learned how to work with a group even if you dont get along with them or share the same work ethics or work style, the job still needs to be done

---

Independence, flexibility and productive work. If the system doesnt work, work the system.

To design chemical engineering processes and evaluate existing processes and improve them while also controlling various equipment using different methods involving mathematics and chemical understanding

---

communication ,helping each other

- Confidence to deal with any kind of problem (Creative Thinking). - Computer Modeling (HYSYS). - Attention to Detail to prevent any failure. - Communication Skills - Teamwork

---

- Confidence to deal with any kind of problem (Creative Thinking). - Computer Modeling (HYSYS). - Attention to Detail to prevent any failure. - Communication Skills - Teamwork

Problem solving, communicate and research

Honesty, credibility and hope.

self-learning, time management, oral skills, self confidence and a lot of engineer skills

self learing, time management, oral skills, self trusting

be patient

no thing!!

How to solve problems

group work

Cooperation and commitment

leadership

team work self learning

Team work / importance of the environment & economy / process & equipment design / using chemical engineering software.

Group work

Stressing-out skills

Confidence

presentation skills - decision making

Self teaching, writing, improved my searching skills.

1- i learned alot about engineering, working in a team , how to solve engineering problems and how to work hard to get what you want.

be able to work for multi-task

Teamwork

working in group and understanding each member of the group. computer skills are also improved. managing the time. confidence at presentations.

creating idea and dealing with engineering matters

Be patient

Work hard

Team work

Good

Analyzing & problem solving & team work

respecting time, being able to talk in front of people (presentation(

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Time Management Techniques - How to Apply for and Interview for a Job

I didn't get the chance to learn the discovery or the invention of new inventory .

Creativity

nothing to mention

I didn't get the chance to be on the deans honor list

didn't get to deans honor list

nothing to mention

no thing

hand made skills

Engineering traning how does an engineer works in companies on a practical way thats what I need

Practical application

college kills the students creativity.

new technologies and advancements regarding my major.

Nothing.

further knowledge in process control and water desalination.

no thing

To have confidence in my answers, to be confidence when i present something.

There are no skills that I did not get the chance to learn while taking courses in Kuwait University.

I learned how to use many programs such as HYSYS, Polymath, Matlab, Autocad and C++.

visiting sites, such as refineries

no thing

Field Training

Lack of Some Computer skills training

I didn't take field training

most important skill is how to deal with chemicals component in the lab

How to be written

The engineering calculator or the scientific calculator Honesty at work Date and time respecting

Interacting with different computer programs that could prove to be very useful in the field of engineering jobs

more classes are need for each material

- Studying is the fields (Desalination plants - Refineries) - Good environment (Classes)

There is no enough studying in field work

Maybe the chance of choosing my instructor.

research/reports skills

the research and report skills

No thing

(calculas) i dont learn any useful thing from it

well study time management

nothing that i recall

alot

We need more trips to understand our disciplines and need more practical study of theory

Presentation skills Hysys

chemical engineering labs do not have enough equipment for all students to run the experiment.

hard work

Presentation & interaction skills

Working in factories in kuwait on what we studied in class by going trip with the dr

Working in factories on what we have studied in class by going trip with dr

Our English language should be improved, we should have some free time to keep our body healthy. More sports should be done. Presentation skills should be improved, I only had two presentation during my college career. Money and time management skills.

Oral presentations.

Oral presentations.

we don't have time for doing sports

I think I have had learned what satisfies my working place.

every thing is well learned

Work as team

Managing the time

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

I suggest to keep updating the education in Kuwait University by following the new teaching technique .

more workshops would be beneficial.

Doctors should be kind and friendly with the students

more field trips

Traditional teaching is more efficient than using data show

nothing to mention

all is good

the academic programs at Kuwait University is perfect

to give the student a lot of chance to let them improving themselves

---

We need parking for the cars , techniques and equibments for teaching are poor .

Please try to fix the parking problem. It causes many traffic problems which will affect our attendance to classes!

Do more field trips for the students so that they can connect the theoretical information they've learned with the actual thing.

---

student should have the chance to teach what they learn and have an elective course to be an teachers assistant. there should be a semester to improve the communication skills as will as writing reports skills

---

I think there should be courses about how to write a good report and extra English courses.

---

replace the unrelated courses in our department, with ones that will actually help us understand more about our major.

Please, update your facilities.

---

1. Some electives in the chemical department depends only on (projects, reports, etc.) with no quizzes, no home works, and no midterms. This will definitely affect student grades and student ability to fully understand the subject. 2. Chemical engineering plant design needs an independent course with more credit because it require a lot of effort and time. 3. Improvement of the engineering labs is needed. Some of the equipment are very old and they should be replaced by new ones. 4. Some engineers and teaching assistants do not commit to their announced office hours

---

Providing parking placee.

---

more practical work

---

i think they should be more English courses

Focusing more on learning experience than tests

---

change all the professors above 60 years old

Change all the outdated faculty members (above the age of 58)

---

provide parking and best doctors

It was amazing and interesting

I dont think its fair the plant design is only 3 credit course, we have been working so hard all course and then its the same credit as any elective

---

Upgrade the registration system Start to buy proggrams and simulators for the student such us hysys, why the student go for a crack or stolen version of hysys to do his project !!!

Adding additional computer programmed assisted courses that involve solving engineering problems that are hard to be solved by hand in order to improve better understanding of real world problems

Seminars for understanding functions

- Move to Shadadia as soon as possible - Improve teaching skills

Change some of the staff in engineering colleges

more research subject / more than one doctor teach same subject.

Developed in education ,,turned on dr explaintion

maybe in shdadeya univercity will improve all things

but training courses

I hope to develop a law for the doctor not to expel the student during his delay from the lecture because of the lack of availability of parking and car parking ..... and reduce the amount of materials that are not needed and just a waste of time

Please Make a Hysys Lab for Chemical engineering student .. simillar to circuit lab which have a pre lab reprot and report the majority of studunt doesnt know how to use it properly..

study hard

The University programs need to upgrade to 2018 needs instead of being stuck in the 70's

Let them know how to work in factories by what they have studied in class by going trip with dr and see how the factories works in kuwait in real life not just seeing them in videos let them live the moment

Let the students live the experience by woking on what they studied in class by going trip with dr and let them live the moment no just seeing kuwait factories on videos

providing more courses related to training

More barking. Less coursework. Equality.

I think the should provide parking places

provide parking and indoor collage

providing seminars and lectures by employees to shows us how we will function in the future and giving us the whole image about the jobs and opportunities. providing more teaching assistants to the college, since the number of students is huge.

doing more presentations

We need time

The evaluation and final grade of the student should be based on their performance the whole semister not from one exam

Civil Engineering Program
Exit Survey Results

For the Academic year 2017-2018

October 2018

CIVIL ENGINEERING MISSION & VISION

The mission and vision of the Civil Engineering Department are consistent with that of Kuwait University. They have been developed with input from all constituencies (e.g. faculty, students and employers).

Mission

The mission of the CE program is to serve the people of the State of Kuwait by providing a broad and high-quality education to its students for a successful professional career, to conduct strong basic and applied research for national needs, and to serve the industry, Civil Engineering profession, and community at large through innovative solutions, dissemination of knowledge, and advancement of Civil Engineering in major areas of the profession

Vision

The vision of the CE program is to establish an outstanding program of regional and international reputation for providing a quality engineering education, excellent research and services to the profession and the community; to produce top-quality civil engineers; and to employ principles of continual quality improvement to enhance its program.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The graduates of the CE program will:

1. Engage in productive careers in a broad range of civil engineering areas in public and private sectors in Kuwait, or successfully pursue advanced studies and careers in academia or in other research environments;
2. Advance in responsibility and leadership in their careers and engage in continuous professional development to respond to rapidly evolving technological and social challenges; and
3. Contribute to the welfare of the society and the development of the profession through responsible practice of engineering and involvement in professional organizations.

Student Outcomes

Graduates of the Civil Engineering program shall demonstrate:

a. Ability to apply knowledge of mathematics, basic sciences and engineering in modeling and analyzing engineering systems.
b. Ability to design and conduct experiments, and to analyze and interpret data.
c. Ability to design a system, component, or process to meet desired needs within realistic constraints in recognized major civil engineering areas.
d. Ability to function as members or managers on multidisciplinary teams.
e. Ability to identify, formulate and solve engineering problems.
f. Understanding of professional and ethical responsibility.
g. Ability to communicate effectively.
h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

i. Recognition of the need for, and an ability to engage in life-long learning.
j. Awareness of emerging technologies in local and global context, and involvement in discussions of contemporary issues related to society.
k. Ability to utilize state-of-the-art hardware and software tools for problem solving and design that are necessary for engineering practice.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Civil Engineering**

*** Number of Students participated in the survey:**

188	Male	21	11%
	Female	147	78%

Survey Results:

*** Students' Future plans:**

No. of students who:

Intend to work in the government sector.	127	68%
Intend to work in the private sector.	101	54%
Intend to go to graduate school.	73	39%
Intend to start my own business	60	32%
Intend to do other things	17	9%
Intend to study masters		
I would prefer working for authorities or petrol companies		
Complete my post graduate studies		
To have my master and doctor degree		
to become a doctor in civil engineering department		
Join the Proteges & engage in the volunteering field		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

*** Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	49	65	41	11	0	22	3.9	3.4
		26%	35%	22%	6%	0%	12%	78%	68%
2	Design and conduct experiments, as well as to analyze and interpret data.	36	62	51	15	2	22	3.7	3
		19%	33%	27%	8%	1%	12%	74%	60%
3	Design a system, component, or process to meet desired needs.	28	60	54	21	2	23	3.6	2.7
		15%	32%	29%	11%	1%	12%	72%	54%
4	Function effectively in teams.	52	55	48	7	1	25	3.9	3.3
		28%	29%	26%	4%	1%	13%	78%	66%
5	Identify, formulate, and solve engineering problems.	49	65	44	6	1	23	3.9	3.5
		26%	35%	23%	3%	1%	12%	78%	70%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	60	49	42	13	1	23	3.9	3.3
		32%	26%	22%	7%	1%	12%	78%	66%
7	Communicate effectively (written reports).	51	43	49	20	3	22	3.7	2.8
		27%	23%	26%	11%	2%	12%	74%	56%
8	Communicate effectively (oral presentations).	49	43	45	24	5	22	3.6	2.8
		26%	23%	24%	13%	3%	12%	72%	56%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	55	56	41	12	2	22	3.9	3.3
		29%	30%	22%	6%	1%	12%	78%	66%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	59	54	39	9	3	24	4	3.4
		31%	29%	21%	5%	2%	13%	80%	68%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc)	51	59	42	10	4	22	3.9	3.3
		27%	31%	22%	5%	2%	12%	78%	66%
12	Ability to use computing technology in communications.	57	48	44	13	3	23	3.9	3.2
		30%	26%	23%	7%	2%	12%	78%	64%
13	Ability to use computing technology in engineering analysis/design.	47	52	43	21	2	23	3.7	3
		25%	28%	23%	11%	1%	12%	74%	60%
14	Ability to use state of the art techniques, and tools in engineering practice.	39	51	47	21	5	25	3.6	2.8
		21%	27%	25%	11%	3%	13%	72%	56%
15	Apply the knowledge of probability and statistics.	38	45	56	23	2	24	3.6	2.5
		20%	24%	30%	12%	1%	13%	72%	50%
16	Proficiency in design at the entry level and recognition of professional practice issues in recognized major areas of civil engineering.	38	46	58	18	3	25	3.6	2.6
		20%	24%	31%	10%	2%	13%	72%	52%

Table 2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 76%	**3.2** **64%**
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.6 73%	**2.8** **55%**
3	an ability to communicate effectively with a range of audiences	3.7 73%	2.8 56%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 78%	**3.3** **66%**
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	3.9 78%	3.3 66%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.6 73%	**2.8** **56%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4 80%	3.4 68%

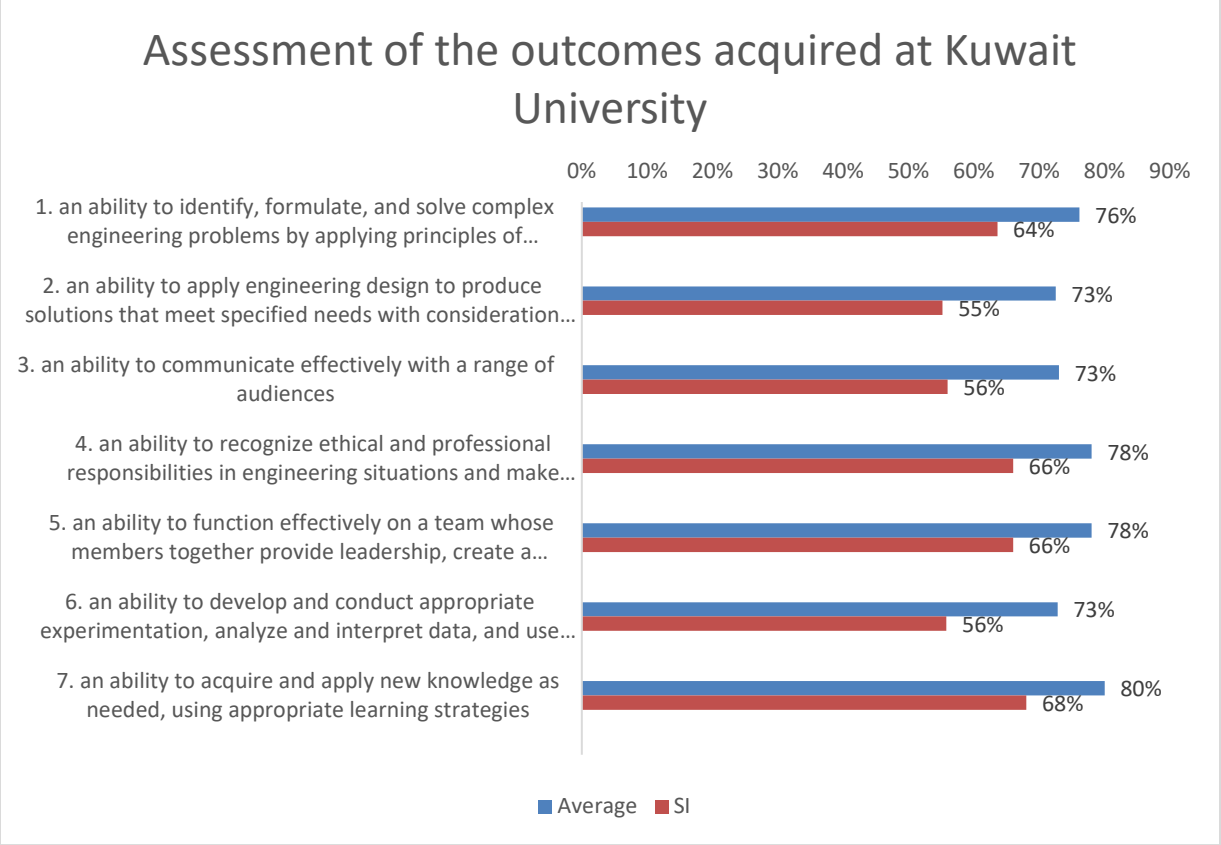

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	33	39	47	26	20	23	3.2	2.2
		18%	21%	25%	14%	11%	12%	64%	44%
2	- Computers (Programming and usage of software packages)	21	36	64	33	10	24	3.2	1.7
		11%	19%	34%	18%	5%	13%	64%	34%
3	- Humanities and Social sciences	23	48	69	17	4	27	3.4	2.2
		12%	26%	37%	9%	2%	14%	68%	44%
4	- General Engineering	39	59	48	15	4	23	3.7	3
		21%	31%	26%	8%	2%	12%	74%	60%
5	- Engineering within major	48	52	50	12	3	23	3.8	3
		26%	28%	27%	6%	2%	12%	76%	60%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		28	38	75	20	1	26	3.4	2
		15%	20%	40%	11%	1%	14%	68%	40%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	30	46	52	24	9	27	3.4	2.4
		16%	24%	28%	13%	5%	14%	68%	48%
8	- Career planning	29	40	53	25	12	29	3.3	2.2
		15%	21%	28%	13%	6%	15%	66%	44%
D. Equity of treatment by:									
9	- Academic administrators	33	46	61	17	6	25	3.5	2.4
		18%	24%	32%	9%	3%	13%	70%	48%
10	- Faculty	29	53	58	19	5	24	3.5	2.5
		15%	28%	31%	10%	3%	13%	70%	50%
11	- Teaching assistants and engineers	31	54	59	19	1	24	3.6	2.6
		16%	29%	31%	10%	1%	13%	72%	52%
12	- Fellow students	36	58	53	17	1	23	3.7	2.8
		19%	31%	28%	9%	1%	12%	74%	56%
E. Quality of the facilities:									
13	- Classrooms	19	25	39	42	36	27	2.7	1.4
		10%	13%	21%	22%	19%	14%	54%	28%
14	- Science laboratories	18	24	51	40	27	28	2.8	1.3
		10%	13%	27%	21%	14%	15%	56%	26%
15	- Engineering Laboratories	18	30	44	42	28	26	2.8	1.5
		10%	16%	23%	22%	15%	14%	56%	30%
16	- Computing facilities	18	24	48	36	37	25	2.7	1.3
		10%	13%	26%	19%	20%	13%	54%	26%
17	- Libraries	21	36	56	37	15	23	3.1	1.7
		11%	19%	30%	20%	8%	12%	62%	34%

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	28	44	45	31	17	23	3.2	2.2	59	80	29
		15%	23%	24%	16%	9%	12%	64%	44%	31%	43%	15%
2	Training office	34	57	47	14	5	31	3.6	2.9	43	87	38
		18%	30%	25%	7%	3%	16%	72%	58%	23%	46%	20%
3	Libraries	32	70	36	15	11	24	3.6	3.1	50	97	21
		17%	37%	19%	8%	6%	13%	72%	62%	27%	52%	11%
4	Bookstores	28	58	48	14	12	28	3.5	2.7	46	91	31
		15%	31%	26%	7%	6%	15%	70%	54%	24%	48%	16%
B. Administrative Offices:												
5	Students affairs office in your department	43	50	45	14	5	31	3.7	3	52	86	30
		23%	27%	24%	7%	3%	16%	74%	60%	28%	46%	16%
6	Administrative offices in the college	34	53	46	16	6	33	3.6	2.8	39	98	31
		18%	28%	24%	9%	3%	18%	72%	56%	21%	52%	16%
C. Other Services:												
7	Health services	25	50	44	18	10	41	3.4	2.6	32	86	50
		13%	27%	23%	10%	5%	22%	68%	52%	17%	46%	27%
8	Food services	21	40	37	35	30	25	2.9	1.9	63	74	31
		11%	21%	20%	19%	16%	13%	58%	38%	34%	39%	16%
9	Parking	12	15	19	27	74	41	2.1	0.9	65	63	40
		6%	8%	10%	14%	39%	22%	42%	18%	35%	34%	21%
10	Recreation and athletics	18	28	23	29	37	53	2.7	1.7	34	71	63
		10%	15%	12%	15%	20%	28%	54%	34%	18%	38%	34%
11	Others	16	22	16	22	13	99	3.1	2.1	28	55	41
		9%	12%	9%	12%	7%	53%	62%	42%	15%	29%	22%

*** Open-ended questions (**unedited student comments**)**

A. Please list some very important skills that you think you had learned in the engineering program.

i learned team work even if we are not in a good relationship in between + presentation improved

Communication skills , team work , working under pressure , work up to the limit

Work under stress Managing time

top analytical skills/way of thinking

computer skills team work better communication to Drs and fellow students (with people in general) better usage of my brain and expanded its capacity

How to well prepare for an exam. Time management

self learning, helping others, being patient , challenging .

How to deal withr real project and companies

patience

i think that i learn how to use some programs like excel, primavera and autocd but in low level because we did not used them alot or we used them in primary way not in details

Create & design a new idea there is nothing impossible to build or create

1. teamwork 2. presentation skills 3. hard work 4. multi-tasking 5. how to organize time

Team work Managing time Think outside the box

confidence ,time managment ,

commitment

cooperat

patient

commitment

improved my decision making, my way of thinking to solve a problem, my soft skills.

-working with groups -connacting with companies -dealing with real project

Computer Engineering

learning to be more cooperation person

team work

team work time managment

time management.

team work

thinking in right way and communications

team work,solving problem,time mangement

Team work,solving problem,time mangment

Team work,solving problem,time mangment

Team work,solving problem,time managment

Creative thinking and attention in detail

Communication

Patient

Dealing with people

solving engineering problems

Critical Thinking

solving engineer problems

ghyytruy

design

Teamwork , the ability to analyze a problem and come up with a solution

communication with people and companies , writing reports and books , analyzing and solving different engineering problems , using different computer programs for engineering .

Manage the time

I learned to do the presentation and the reports. And how to use related programs , Also how to be good group leader and how to deal with problems in the groups if we face it.

self learing

Group working.

- Time management - Ability to work in teams - Ability to lead a team - Ability to analyse and think analytically

Software

I learned how to work in a team , Be on time , Be patient.

1-presenting. 2- write reports 3- teamwork. 4- communication.

Being able to recognise the problem and somehow solve it.

Group working

Self-reliance, don't give up when facing any problem, how to solve the problem,...

Being able to solve problems and communicate with others in a professional way. Also, had some computer practice.

engineer thinking , the ability to solve problems .

Time management and team work

Time management and team work

Teamwork,group studying.

Ability to work in groups and presenting .

Gaining good knowledge in engineering, math., physics and social sciences.

How to work.. how to talk .. how to sitting the beams and column in the layout planning and many things that we dont know how to do it in the univ but we learnt that in the trining program

How to work.. how to talk .. how to sitting the beams and column in the layout planning and many things that we dont know how to do it in the univ but we learnt that in the trining program

How to work.. how to talk .. how to sitting the beams and column in the layout planning and many things that we dont know how to do it in the univ but we learnt that in the trining program

How the work is done in the real life , how to read layout plannig , how to use some important software , how the work is done in construction site

Presentating skills

Ability to work with a group

Work in teams

Patience

Work hard and know new information

Problem solving

- working as a group

self learning , appreciating others efforts , solving problems

solving problems , engineering mind & thinking , team work

improved my mind in an engineering way.

- Tima management - Working in stress

-communication with doctors and engineers and understand how they should be treated because they have met millions of students and they think everyone copies the homework's and cheats, so you need to prove to them that you didn't cheat . -learned some useful techniques in Auto-Cad , sketch-Up , Excel , word , power point , Prezi and Syncho. Capstone design project by: Bashayer Nabeel ALMusallam Aisha Fahad ALKhannah Rawaa Khaled Bo ALBanat Noura Ghanim ALShatti Supervised by:

- Communication - Thinking to find solutions - Self confidence

How to identify problems

being strong time value fast to under stand

team work patience

design structures

communication

Apply knowledge of mathematics, physics and engineering.

Of the important programs to be taught at the university Majali as a civil engineer Excel and Pramfira stadium program Mu only as a study taught and units need to Tsuen project quickly and quickly by the time we learn the whole article through the programs

AutoCad

-Leadership skills. -Writing reports. -Design skills. -Effective presentation skills. -Teamwork. -Communication skills.

Analytical thinking - Generation of solutions/ ideas - Teamwork - Utilizing mathematics and science to define problems and solve them - Writing scientific reports and papers.

Communication skills and negotiation skills

working with group

Dealing with engineers in other sectors

Writing reports Research Analyzing

groupe work

No things

How to co-operate with others when working in teams, taking responsibility and ensuring that tasks are done on time, gaining confidence when publicly speaking (oral presentations), dealing with engineering problems and using different engineering softwares. also through extensive reading and plenty of writing through out the years, my skills in both reading and writing have significantly improved.

Writing - computing technologies

team work

I knew how to deal with engineering material

team work

Engineering programs

programs:C++,syncho,Auto cad,sketch-up -communicating with doctors and engineers - presenting presentation in front of an audience

communication skills, solving problems, better understanding, dealing with stress

Teamwork, information exchange and collaboration skills

Problem analyses

Self study and general knowledge- time management- working under stress

Solve problem

the ability to work in groups and presentation skills.

It's very important

Career planning

Teamwork and how to manage my time

Work as a group

Team work,time management,designing abilities

cooperate -effective - leading

Discussion with doctors , Self-reliance and confidence

Search/find alternative solutions

Communication skills

team work

group communication ,maths , analysis and solving problems

career planning

To challenge my self and face the problems

patience , problems solving and teamwork.

Team work and working under stress

sketch up design

I learned many structural skills

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

we need to have training courses at least for the last 2 courses

Engineering in real life and field work , as civil engineers we need to go for site visits to learn how the work is actually being done

Relating the knowledge in real field work

teamwork

practical skills in construction sites

Kuwait University does not teach us how to practically apply what we learn. It does not provide us with field / real life experiences. Also, very little practice when it comes to oral presentations.

No thing

no subjects with field visit which we need the most as engineers

We could be better if we learn correctly and apply what we have learned

training in real life should take extra place .

Some of Engineering skills Search skills

working with people,compitition ,presenting

working with people,compitition ,presenting

the english language

English difficulty

the english language

english language

technical skills.

team work,

time managment

the reality of my job like going to sites and see the construction

Speaking English fluently

Some feild skills

dont have

Field & Site Training

Workshops

visiting fields and sites to know how to deal with it , using modern engineering programs .

Not available

how to deal with problem the will face us in the future job and ethics ,and we have to visit site in related to the subject to know the forms of equipment in fact and how it works.

presentation skills

Being an active member in any socitey.

The ability to learn new softwares in Civil engineering, engineering training.

Reading drawing

public speaking

proper leader

Training courses.

- solving the engineering problem deep thinking

How to deal with the working life, working in groups and how to deal with the programs which are using in most of the companies

Oral presentation skills.

computer programs skills

Adaptability and problem solving

Need to use more computer programs to solve the engineering problems

practical courses that enable me to be fully prepared to enginnnering in actual life .

How to siting the column and beams on the layout planning and how to use autocad and stadpro softwares on civil engineering

How to siting the column and beams on the layout planning and how to use autocad and stadpro softwares on civil engineering

How to siting the column and beams on the layout planning and how to use autocad and stadpro softwares on civil engineering

How to read layout planning, how does the work do in the real life . We need to know all this things .

Linking between what learned and the reality at work or in Kuwait in general

Civil AutoCad and read drawings

Poor in training

Ability to design

Field work

make our project in Kuwait .

Design

communicating with public , mostly social skills

communication skills

Reduce the anger.

GIS reading blue prints

The practical aspect (training on future work) at the university is not available

Oral presentation and staad software

field work

analysis using programs

presenting

Practical application or realistic visits to what we learn or take in the courses.

As a civilian engineer, what we are supposed to learn at the university is that we are familiar with the sites and live the reality of the real engineer. We understand the situation on the ground more than we keep it and hear it in the exam.

Etab and other civil engineering programs More training in reality not just learning theory

-Engineering critical thinking in problem-solving (we are often taught the solution not the way we think to reach the solution). -Self-study skills. -How to professionally work with male engineers. -Research skills. -How to write a scientific paper. -Application of engineering matters is rare.

Desing and conduct an engineering project earlier than course of capstone design - How to present/market an engineering project to companies/buyers.

oral presentation

More programs that we will deal with in work later

Teamwork

Practical applications of some important study material.

group work

The application of our education in real life and site visits to know how the work is done

group work

Risk mangment,computer application , related to engineering.

program:GIS

I don't know

Application of the practical sense of landing the site with the instructor of the course

Public speaking

Learning about useful programs to convert our study from theoretical into practical

Hand working

Up-to-date soft wares.

No need

Site visits

Limited time

Feild working

making more oral presentation to increase the confidence in this sector.

Working as team

Communication skills

should be more training courses

public speaking

To have practical lesson or see what we have learned

field trips

some computer programs

didnt had chance to be a member in ASCE

Sttad pro

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

adding more parking, making a more advanced web-site for registration

Giving more attention to the practical side of engineering

Update the engineering labs

the academic programs is great BUT update/renew facilities!

more practical civil electives!

I think for civil engineering major the university should add classes that involve reading plans and how to do plans of all sorts. Also, to enhance the field experience and oral presentation skills.

the engineering collage must depend on the practical parts moer than theoritical part

i think that you should add some subjects that need site visits so we can which can help to be prepared for field working. The only thing we do in the university is learning how to study and prepared for exams without giving the chance to think out side the box which we need the most to be more creative.

I hope to have more control over some of the doctors and take the grievance into consideration

1. increase training programs 2. increase presentation and reports submit 3. reduce the amount of exam

Encourage and reward teaching excellence, curricular improvement and pedagogical innovation.

Encourage and reward teaching excellence, curricular improvement and pedagogical innovation.

allow site visits as part of courses as much as possible, it is useful for under graduate students.

no thing

the program should be taken in two courses
the program should be taken in two course
no comments.
improve the teaching skills and new technology in class rooms like touch screens and better boards
The number of students must be appropriate to the classroom area
increase the oral presentations in the courses and increase the visiting to the working sites
Improiving the feild training
parking and parking and parking
Focusing on the Practical side of engineering more than the theoretical one
please improve parking
More parkings
providing site trip , improving the learning technology and techniques , providing modern engineering programs .
Develop equipment to make it compatible with technology and modernize teaching methods such as developed countries. The student must come to the university comfortable and sure that he will have a teaching useful and useful to others.
writing skills
Teaching methods should be more advanced.
Focusing on improving students academic writing skills, oral presentation skills and projects based courses should be offered more
involve and prepare students for the fieldwork more.
Training courses should not be elective.
Please try to change the teaching way and the exams
I think each major or academic program in the engineering department must have training programs in fields. It should not be elective.
increase number of presentations which help students to improve there skill as an engineer
Provide some entertainment facilities Provide more parking places
provide entertainment facilities and more parking places
Improve the class rooms, labs, and parking for sure
Use higher technology system
practical courses to improve the standards and levels of undergraduate engineers

All things is great

All things is great

All things is great

Every things is great but we need to combine between the subjects in the university and the work in the real life .

1-solve the problem of the parking 2-Monitor the teaching of doctors and evaluate them periodically

The cafeteria should be imprived!!

Classrooms must be changed and improved.

More on site training

Be more easy at students :)))

students need more enjoyable courses that improve their social skills and the ability to communicate . also the cafeteria needs a lot of improvements starting with the type of food and ending with the high prices to a lot of students . the library printers mostly do not function .

- evaluate doctors skills ,check their ability to deliver the information

Using Technology more than now, and keep listening to student's opinions

- interest in the practical side more than the theoretical - preparing the student to work

Make staad software minor subject

remove the homeworks

parking

improve the faculty members periodically

The development of teaching methods and training of professors and doctors on the way of explanation and treatment student and how to deliver information to the student to develop a system that preserves the right of the student is not a system of grievance higher Doctor or teacher and after the university all describe with the Doctor the number of injustice on the student, the ethics of the doctor before his knowledge of cleaning cats and clean the cafeteria and the development of books Read the latest information in the University Library Mu Majid Magazine and respect the student's mind

In my experience from going to Kuwait University improvements must be done . The priority number one should be the student . A lack of care to the student is seen obviously . Improve parking. The doctors should respect the student and do there work professionally and there should be warning letter sent to the doctor who don't.any if there is more than 3 claims about a doctor he will receive a warning letter . Improve food cafeteria. I didn't go there for 3 years . The printing company is bad and need to be improved. There must be a box in every for any claims .

The interaction between faculty members and students should be increased during classes as few faculty members interact with their students. New teaching techniques and technology should be implemented. Applications of engineering matters should be implemented as well. I suggest increasing the practical part in courses. Real site-visits are mandatory for students to understand specific courses. I expect from a college to teach its students how to think, solve problems, and how to judge and evaluate the different solutions which were rarely done by few faculty members. I also suggest preparing students for oral presentation more often during the academic life as this skill is highly necessary for addition to report-writing skills. The engineering

training course is preferred to be restricted than an elective for the sake of having experienced engineers and prepared for the professional life afterward.

The capstone design course to be registered to for two semesters, meaning to decompress the design course into an academic year to optimize students' knowledge abilities and developments within the course of the year. That would lead to higher satisfaction of the projects end results.

---

writting skills

I dont have any

Improve social sciences

No things

---

providing practical applications of what is being taught in order for the students to efficiently understand the full concept and get a clear image of what they are learning which will play a huge role in their practical life after college.

Change the way of teaching

We need parking and we need new class rooms

More presentations.

Cancel the graduation project and replace it with drop-down sites

---

High Concentration in the quality of teaching

Set agreements with major engineering companies in kuwait to lecture and enlight students about their future

---

The doctors being more involved in the project and helping more

---

the disadvantage that I met is about the difficult of registration for every course .

New board Not chalkboard use white boared

Use more technology in teaching/improve register system

---

do not have any comments

There are no enough parking and the classes have broken chairs and tables need to take care

---

Justice in giving degrees and standardization of all doctors

Expand and strengthen programs that focus on critical student transitions, improve the effectiveness of academic and career advising

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Doing more sites visit

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Computer Engineering Program
Exit Survey Results

For the Academic year 2017-2018

October 2018

COMPUTER ENGINEERING MISSION & VISION

Mission

The mission of the undergraduate program in computer engineering is to foster excellence in computing by

- Providing a high quality, accredited educational experience that prepares students for success in engineering practice and advanced studies.
- Serving the academic, professional, and business computing communities in the State of Kuwait.
- Creating, expanding and disseminating knowledge through scholarly activities.

Vision

The vision of computer engineering department is to be recognized regionally and internationally as a provider of high-quality undergraduate and graduate education that emphasizes scholastic excellence, practical skills, and professional competency to become leaders in exploring new frontiers in computing. In addition, our vision is to conduct state-of-the-art research and deliver community services.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

Our Computer Engineering Program Educational Objectives have been established to highlight the areas of student achievement that will satisfy constituent's needs, both now and in the future, and fulfill the program's mission.

Educational objectives of the undergraduate computer engineering program at Kuwait University are to produce graduates who will be:

1. Practitioners of computer engineering with productive careers in computing professions in public and private organizations, and academia.
2. Engaged in professional development and learning activities by pursuing advanced studies or training in engineering or other disciplines.
3. Contributors to the welfare of society, and the development of their business and professional environments.

Student Outcomes

Graduates of the Computer Engineering Program shall have the knowledge and skills described below:

a. An ability to apply knowledge of mathematics, science, and engineering.
b. An ability to design and conduct experiments as well as analyze and interpret data.

c. An ability to design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multi-disciplinary teams.
e. An ability to identify, formulate, and solve engineering problems.
f. An understanding of professional and ethical responsibility.
g. An ability to communicate effectively in oral and written form.
h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i. A Recognition of the need for, and an ability to engage in life-long learning.
j. A Knowledge of contemporary issues.
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
l. A Knowledge of probability and statistics, including their applications to computer engineering.
m. A knowledge of mathematics through differential and integral calculus, and basic, computer, and engineering sciences, necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components, as appropriate to computer engineering.
n. A Knowledge of discrete mathematics.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Computer Engineering**

*** Number of Students participated in the survey:**

74	Male	21	28%
	Female	44	59%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	45	61%
Intend to work in the private sector.	29	39%
Intend to go to graduate school.	16	22%
Intend to start my own business	18	24%
Intend to do other things	4	5%
programming video games		
cont. my studies (master and PHD)		
I intend to join a training program		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

*** Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	6	32	23	3	0	10	3.6	3
		8%	43%	31%	4%	0%	14%	72%	60%
2	Design and conduct experiments, as well as to analyze and interpret data.	12	22	24	6	0	10	3.6	2.7
		16%	30%	32%	8%	0%	14%	72%	54%
3	Design a system, component, or process to meet desired needs.	11	29	17	7	0	10	3.7	3.1
		15%	39%	23%	9%	0%	14%	74%	62%
4	Function effectively in teams.	18	26	11	7	2	10	3.8	3.4
		24%	35%	15%	9%	3%	14%	76%	68%
5	Identify, formulate, and solve engineering problems.	12	30	15	7	0	10	3.7	3.3
		16%	41%	20%	9%	0%	14%	74%	66%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	23	22	12	5	2	10	3.9	3.5
		31%	30%	16%	7%	3%	14%	78%	70%
7	Communicate effectively (written reports).	18	29	9	7	1	10	3.9	3.7
		24%	39%	12%	9%	1%	14%	78%	74%
8	Communicate effectively (oral presentations).	13	24	17	9	1	10	3.6	2.9
		18%	32%	23%	12%	1%	14%	72%	58%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	15	25	19	4	0	11	3.8	3.2
		20%	34%	26%	5%	0%	15%	76%	64%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	20	20	20	4	0	10	3.9	3.1
		27%	27%	27%	5%	0%	14%	78%	62%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	9	23	25	5	1	11	3.5	2.5
		12%	31%	34%	7%	1%	15%	70%	50%
12	Ability to use computing technology in communications.	16	27	13	6	1	11	3.8	3.4
		22%	36%	18%	8%	1%	15%	76%	68%
13	Ability to use computing technology in engineering analysis/design.	14	20	25	5	0	10	3.7	2.7
		19%	27%	34%	7%	0%	14%	74%	54%
14	Ability to use state of the art techniques, and tools in engineering practice.	10	25	14	10	2	13	3.5	2.9
		14%	34%	19%	14%	3%	18%	70%	58%
15	Apply the knowledge of probability and statistics.	4	16	28	12	4	10	3.1	1.6
		5%	22%	38%	16%	5%	14%	62%	32%
16	A knowledge of mathematics through differential and integral calculus, and basic, computer, and engineering sciences, necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components, as appropriate to computer engineering.	6	22	24	10	2	10	3.3	2.2
		8%	30%	32%	14%	3%	14%	66%	44%
17	A knowledge of discrete mathematics.	15	18	21	8	2	10	3.6	2.6
		20%	24%	28%	11%	3%	14%	72%	52%

Table 2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.6 72%	3.0 61%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.7 74%	3.1 62%
3	an ability to communicate effectively with a range of audiences	3.8 75%	3.3 66%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 75%	3.1 62%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	3.8 76%	3.4 68%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.7 74%	3.1 61%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.1 62%

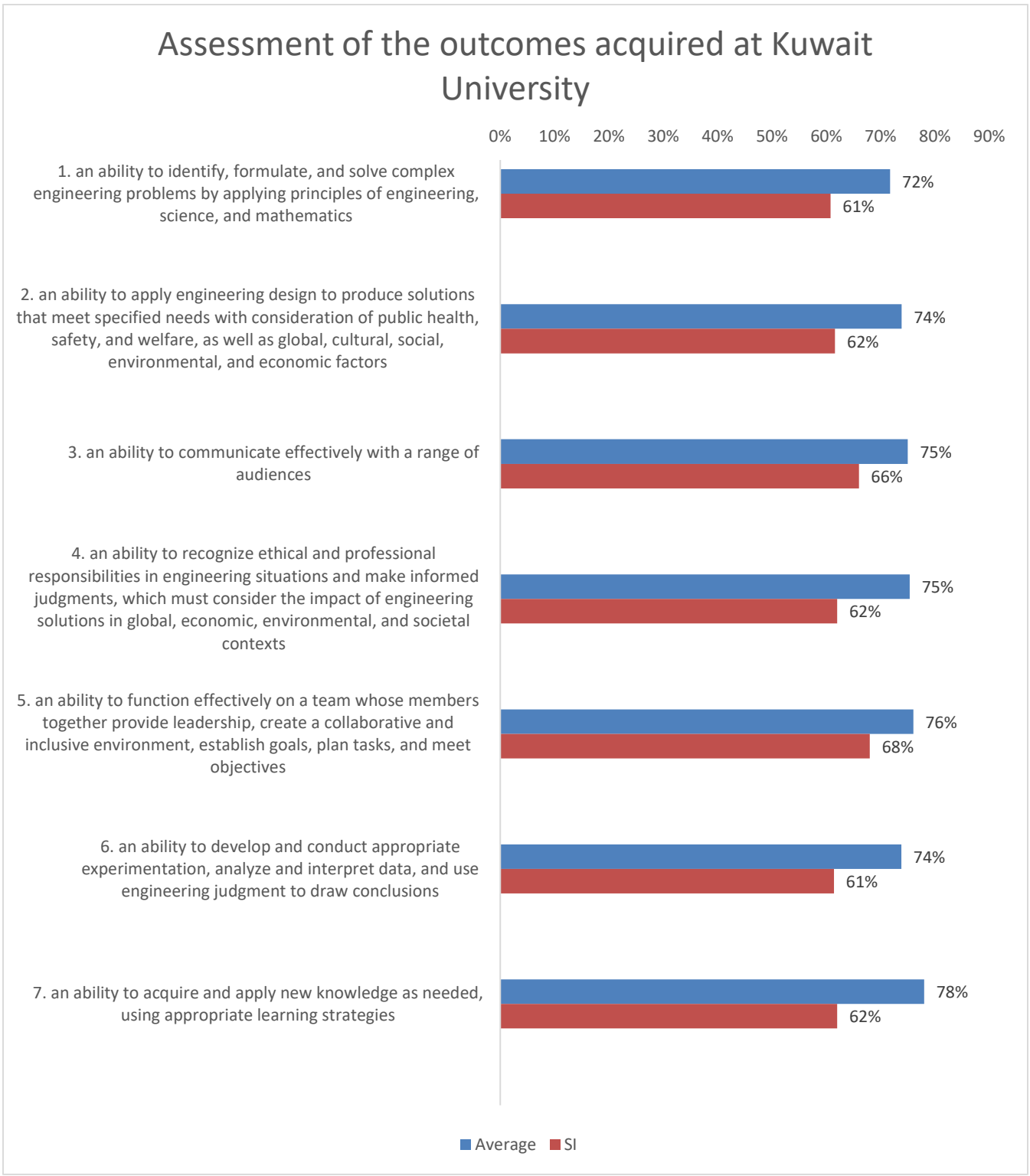
Assessment of the outcomes acquired at Kuwait University
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
72%
61%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
74%
62%
3. an ability to communicate effectively with a range of audiences
75%
66%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
75%
62%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
76%
68%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
74%
61%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
78%
62%
Average
SI

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	2	11	16	16	19	10	2.4	1
		3%	15%	22%	22%	26%	14%	48%	20%
2	- Computers (Programming and usage of software packages)	11	23	22	8	0	10	3.6	2.7
		15%	31%	30%	11%	0%	14%	72%	54%
3	- Humanities and Social sciences	8	16	27	9	0	14	3.4	2
		11%	22%	36%	12%	0%	19%	68%	40%
4	- General Engineering	7	15	29	6	7	10	3.1	1.7
		9%	20%	39%	8%	9%	14%	62%	34%
5	- Engineering within major	13	23	21	6	1	10	3.6	2.8
		18%	31%	28%	8%	1%	14%	72%	56%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		5	18	23	13	3	12	3.1	1.9
		7%	24%	31%	18%	4%	16%	62%	38%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	6	8	21	5	2	4	3.3	1.7
		13%	17%	46%	11%	4%	9%	66%	34%
8	- Career planning	5	9	13	7	3	9	3.2	1.9
		11%	20%	28%	15%	7%	20%	64%	38%
D. Equity of treatment by:									
9	- Academic administrators	5	22	24	9	2	12	3.3	2.2
		7%	30%	32%	12%	3%	16%	66%	44%
10	- Faculty	7	20	23	11	3	10	3.3	2.1
		9%	27%	31%	15%	4%	14%	66%	42%
11	- Teaching assistants and engineers	11	13	25	10	4	11	3.3	1.9
		15%	18%	34%	14%	5%	15%	66%	38%
12	- Fellow students	9	15	26	9	4	11	3.3	1.9
		12%	20%	35%	12%	5%	15%	66%	38%
E. Quality of the facilities:									
13	- Classrooms	2	8	17	14	21	12	2.3	0.8
		3%	11%	23%	19%	28%	16%	46%	16%

14	- Science laboratories	2	9	21	13	19	10	2.4	**0.9**
		3%	12%	28%	18%	26%	14%	48%	**18%**
15	- Engineering Laboratories	3	9	22	9	20	11	2.5	**1**
		4%	12%	30%	12%	27%	15%	50%	**20%**
16	- Computing facilities	6	10	16	12	16	14	2.6	**1.3**
		8%	14%	22%	16%	22%	19%	52%	**26%**
17	- Libraries	5	22	21	9	6	11	3.2	**2.1**
		7%	30%	28%	12%	8%	15%	64%	**42%**

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	1	21	15	14	10	13	2.8	1.8	18	32	15
		1%	28%	20%	19%	14%	18%	56%	36%	24%	43%	20%
2	Training office	2	14	23	3	7	25	3	1.6	5	30	30
		3%	19%	31%	4%	9%	34%	60%	32%	7%	41%	41%
3	Libraries	5	29	16	7	2	15	3.5	2.9	18	30	17
		7%	39%	22%	9%	3%	20%	70%	58%	24%	41%	23%
4	Bookstores	3	23	18	10	3	17	3.2	2.3	15	37	13
		4%	31%	24%	14%	4%	23%	64%	46%	20%	50%	18%
B. Administrative Offices:												
5	Students affairs office in your department	5	16	23	7	2	21	3.3	2	16	33	16
		7%	22%	31%	9%	3%	28%	66%	40%	22%	45%	22%
6	Administrative offices in the college	5	16	22	8	1	22	3.3	2	13	37	15
		7%	22%	30%	11%	1%	30%	66%	40%	18%	50%	20%
C. Other Services:												
7	Health services	6	13	15	7	7	26	3.1	2	14	30	21
		8%	18%	20%	9%	9%	35%	62%	40%	19%	41%	28%
8	Food services	1	12	14	21	14	12	2.4	1	26	25	14
		1%	16%	19%	28%	19%	16%	48%	20%	35%	34%	19%
9	Parking	1	4	6	9	38	16	1.6	0.4	31	14	20
		1%	5%	8%	12%	51%	22%	32%	8%	42%	19%	27%
10	Recreation and athletics	0	8	9	11	17	29	2.2	0.9	8	19	38
		0%	11%	12%	15%	23%	39%	44%	18%	11%	26%	51%
11	Others	1	6	9	2	7	49	2.7	1.4	10	15	21
		1%	8%	12%	3%	9%	66%	54%	28%	14%	20%	28%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

HTML and Java languages.

-How to search deeply. -How to predomination time.

Presentation skills, Ethics of Report and research writing, Hardware and software principles, and the connection between Electrical engineering and Computer science using Computer Engineering major.

Team working Presentation Skills Computer Programming Networks

---

Presentation, team leading, group working, and project management.

---

database programming unity 3D design modeling AR technology

---

database programming unity 3D design modeling AR technology

- Team work. - Commitment. - Time management. - Oral Presenting. - Dealing with new/unexpected situations.

---

i learned Java, Assembly, Quartus, C++, Matlab programming languages in addition to using the Android Studio program.

1- how think as Engineering to solve problems. 2- learn how programming .

---

c++, java

I think that i had learn (oral presentations ,how to work with group and get a lot of information about engineering problem and about life in general).

---

introduction to logic and computer programming Networking, Security and Operating systems Data Base

---

programming languages

Programming (JAVA, JS, PHP, C++, Verilog) Algorithms Data Structures OS Computer Networking Computer Architecture Software Engineering Security

---

i learned how to build an application on android and how to write an algorithm to solve some problems

---

More social than before, Respect, Timing, Drive fast.

Programming skills, writing skills in reports, presentation skills, designing 3D objects.

I learned how to learn. I learned how to find what I need to know/learn for a project that I have not been taught the knowledge it requires, but only the concepts it includes. The skill of self-learning is what I most

appreciate from my department. Next is the academic English, oral presenations and proper report writing skills.

---

programming in java and c++, writing reports and presentation skills

---

- programming skills : web development - network designing - app development - presentation skills - communication skill

---

Designing systems ... writing reports.. extreme patience

---

coding brainstorming writing report

---

leadership writing programming

Learning under pressure and utilizing the time in a right way

---

programming, searching, and self study

Coding

1- team work 2- presentation and communication skills 3- self learning 4- good Engineering background

---

critical thinking, researching, writing reports, designing systems, working under extreme load and short deadlines

---

solving problems

I had learned a lot of programming skills like: java , C++, Omnet ++, pspice , Microcontroller, etc.. also skills in how to create my own operating system.

---

programming and self learning

---

teamwork self-learning

---

self confidence , solving problems with deadline ,ability to recognize the problem and find multiple solution for it . how to work with group .

-Technical Skills -Research and Training Skills -Decision-Making and Troubleshooting Skills -Hardware Experience -Programming Languages -Solving problems

---

self learning,programming,planning,management,collaboration

Searching, Programming, Documentation..etc.

---

software designing , communication , oral presentations , leadership

---

some programing language like C++, Java, and SQL

Programming , searching and i learn how to implement the blockchain

---

comunication

Applying math to solve problems and Coding

to work in time , to work with a team!

cooperation

cooperation

Programming and designing a project from scratch and how to present new ideas in attracting way

trust/challange/lead my self

How to improve my self and be more confident.

CODING - WRITING PAPERS - ORAL

Depends on my self, scheduling

Working with teams Finish work in time Calculate the benefits of each work before starting

Team work.

writing-searching-presenting

I have learned many programming languages and i also learned alot about engineering in general

programming, networking and hardware knowledge

Presentation, socializing, computer engineering skills (eg: programming) and solving problems.

How to deal with problems

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Database.

-trying government work

Virtual Reality, Internet of things, nano technology, Augmented reality, Smart phone software development, and Ethical Hacking.

Virtual Reality Internet of Things Nanotechnology Augmented Reality Smartphone Development Ethical Hacking Keeping up-to-date with new hardware How to use No-SQL database or newer DB

Mobile programming.

Php or Python language

Php or Python language

- Future career work qualifications or preparation / how to build up a complete CV.

We spent a lot of days in youtube to learn how to use Android Studio to program our senior project application. There should be at least one course to learn students everything important about it which saves a lot of efforts for the students.

1- training and test our skills

computer security

I think that we need more courses in culture and art.

training courses Some private courses such as Oracel and CISCO

no thing

Python Mobile Programming Be more familiar with Linux Building Robots/Computers/Machines/Networks/Servers/Firewalls Sensor Analysis Learn Databases

i want to have the chance to implement a virtual realty

Confidence, Personal finance, positive thinking

Animation skills (for presentation and stuff), drawing skills (to design a prototype).

marketing, or selling my ideas. the 395 and 495 committee presentations introduced me to this skill but not enough.

- more security courses should be taught in our department

Work experiences

marketing

professional programming

Having more practical courses specially in programming

web developing and security.

training in a company, facility or something like that, especially that the computer engineering training course is elective and I did not get the chance to join it.

how to interact with the other sex properly in a professional way, this is important for our future JOBS!, how to write CV or apply for jobs

---

designing

---

study more programming languages , such as: python , C.

---

robotics course

---

from my major I did not take a good time to learn from programming .

-We will need to know how to design a application for Arduino and iOS.

---

ethical hacking, cyber security

Hacking. Building IOS application.

---

humanities , field work , practical experience in real working environment

---

robotic course artificial intelligence

Blockchain

Experiencing advanced technology

---

hacking course for computer engineer

Application designing and robotic classes

---

self learning

..

Dealing with actual companies

Ethical hacking.

---

i wanted to take languages classes like French and Japanese but i couldn't do so.

---

internet security and ethical hacking

I did not practice the real electrical engineering. We did not have a chance to build circuits from the scratch and apply some projects on it.

Practice in real work

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

none.

---

try to change some rules, like the final credit !!

---

provide such courses of " Virtual Reality, Internet of things, nano technology, Augmented reality, Smart phone software development, and Ethical Hacking " that may enhance the outcome of the knowledge relieved by students, to facilitate their new up to date skills with their future career .

Remove unnecessary courses that the major doesn't need. When assigning a teaching instructor its better to test if the the instructor can actually deliver the information to student otherwise its better to save time and self-study at home. Most instructors assume that we are taking his subject only, overloading us with projects and homework that we cannot submit their due.

None.

---

i prefer that the number of members in the senior project is around 3 to 4 members not more so everyone in the team can work and divide the jobs equally

---

i prefer that the number of members in the senior project is around 3 to 4 members not more so everyone in the team can work and divide the jobs equally

---

- Some courses are not suitable with some majors. Therefore, it is preferable if these courses are replaced with other courses that are more convenient & beneficial with respect to each specific major for each student.

The KU portal is very old and has a lot of problems. It should be upgraded to a fully newer version and solve all issues regarding registration system.

---

divide the total grade into practical skills instead of making +40% only on one final exam.

The registration should be improve (by force).

---

the university need to renew its labs and classrooms

---

no thing

Please build a more practical program. The academic program at Kuwait University is heavily-theoretical with very little of what is learned applied practically. I would have loved to engineer what I learnt from my courses and build applications, systems that actually were based on the theory.

---

offer more elective courses with interesting content such as building a robot or virtual realty

---

Improve the parking, Improve the website interface

It is better to give courses for some programs as Matlab and Python in computer engineering since some instructors ask for us to program using these programs but we had no experience in them. Plus I suggest removing the subjects that have no benefits to a certain major or at least students can take them as elective. And finally I hope more elective subjects will be available in the future.

the academic content is good but the projects would be much more useful if they get oriented to the market, by using the tools/software packages that are used in the market and for purposes (apps, databases, ...) close to what the market will want us to do.

get good instructors:)

No idea

To provide more practical courses and to have courses that is related to the real life applications

Academically, it is getting better. Some faculty members need to be more serious and encourage there students more. Students need to participate more in competitions, events, exhibitions and so. Most of them will not do it without an actual encouragement. So, it will be amazing if these students were rewarded for participating in such activities. The rewards should be like a bonus in the class, money, priority after graduation when they want to work or complete their studies, or anything like that.

improve the food services and enforce extreme penalties for companies that doesn't have good food regulations, have better class rooms, more resting areas for the students, more park sites !

.

training ships for more advance learning about security and data management

real interaction with working environments , courses with projects that are more real , more programming languages .

more practical labs

Changing the way of teaching

Improve the quality of the teaching faculty, not everyone are suited to teach even if someone is proved to be very smart that does not mean he/she is a good teacher, teaching is a skill that need to be learned.

organization/adjust appointments

organization/adjust appointments

I wish teachers invest more in there students skills and develop creative teaching skills more than checking for attendance only

apply more practical subject ,having employee in each departement whose listen students issues.

THE PORTAL NEEDS ENHANCEMENT - STUDENT GUIDING

Improve learning to be more practical than writing :(

More activities

Listen to student, and give them more time.

N/A

---

learning from the success of the top universities and improving their curriculum and applying it

---

Having more practical courses with different projects rather than labs with specific tasks to be ready for working in real life.

Bo comment

Electrical Engineering Program
Exit Survey Results

For the Academic year 2017-2018

October 2018

ELECTRICAL ENGINEERING MISSION & VISION

Mission

The mission of the Electrical Engineering Program is:

- To provide a quality and broad engineering education.
- To conduct strong basic and applied research, to dissemination of knowledge, and to contribute to advancement of science and technology.
- To serve the industry, the profession, and the community at large through innovative solutions.

Vision

The vision of the program is to gain regional and international recognition for providing a quality engineering education, outstanding research programs and exceptional community service. In addition, it is envisioned that the graduates of the program will be successful in their professional careers and/or graduate studies, prepared for professional creativity and leadership, and lead productive lives that contribute to improvement of society.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The Program Educational Objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

The EE Program has adopted the following Program Educational Objectives.

1. Graduates will successfully engage in careers in the broad range of electrical engineering areas to serve the needs of both private and public sectors.
2. Graduates will engage in continuous professional development activities, seek learning opportunities including graduate studies, and adapt to the rapid changes in work environment.
3. Graduates will contribute to the well-being of the society and environment through responsible practice of engineering profession.

Student Outcomes

The graduates of the Electrical Engineering Program will have:

(1-a) An ability to apply knowledge of mathematics, science, and engineering.

(2-b) An ability to design and conduct experiments, as well as to analyze and interpret data.

(3-c) An ability to design a system, component, or process to meet desired needs.

(4-d) An ability to function on multi-disciplinary teams.

(5-e) An ability to identify, formulates, and solve engineering problems.

(6-f) An understanding of professional and ethical responsibility.

(7-g) An ability to communicate effectively.

(8-h) A broad education necessary to understand the impact of engineering solutions in a global and societal context.

(9-i) Recognition of the need for, and an ability to engage in life-long learning.

(10-j) Knowledge of contemporary issues.

(11-k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

(12-l) Knowledge of probability and statistics, including applications appropriate to the program objectives.

(13-m) Knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.

(14-n) An ability to analyze, designs, and implement systems containing hardware and software components.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Electrical Engineering**

*** Number of Students participated in the survey:**

223	Male	67	30%
	Female	146	65%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	153	69%
Intend to work in the private sector.	110	49%
Intend to go to graduate school.	52	23%
Intend to start my own business	68	30%
Intend to do other things	17	8%
Travel around, do new hobbies.		
I work now in Kuwait national guard		
Continue studying, do arts, and build robots.		
To take the master		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

*** Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	65	73	66	7	1	11	3.9	3.3
		29%	33%	30%	3%	0%	5%	78%	66%
2	Design and conduct experiments, as well as to analyze and interpret data.	49	78	68	15	2	11	3.7	3
		22%	35%	30%	7%	1%	5%	74%	60%
3	Design a system, component, or process to meet desired needs.	57	68	70	13	3	12	3.8	3
		26%	30%	31%	6%	1%	5%	76%	60%
4	Function effectively in teams.	73	66	55	13	4	12	3.9	3.3
		33%	30%	25%	6%	2%	5%	78%	66%
5	Identify, formulate, and solve engineering problems.	54	87	55	13	2	12	3.8	3.3
		24%	39%	25%	6%	1%	5%	76%	66%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	67	66	66	9	3	12	3.9	3.2
		30%	30%	30%	4%	1%	5%	78%	64%
7	Communicate effectively (written reports).	63	67	59	18	4	12	3.8	3.1
		28%	30%	26%	8%	2%	5%	76%	62%
8	Communicate effectively (oral presentations).	74	63	58	15	2	11	3.9	3.2
		33%	28%	26%	7%	1%	5%	78%	64%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	61	65	74	10	1	12	3.8	3
		27%	29%	33%	4%	0%	5%	76%	60%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	59	63	70	17	2	12	3.8	2.9
		26%	28%	31%	8%	1%	5%	76%	58%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	48	54	81	24	4	12	3.6	2.4
		22%	24%	36%	11%	2%	5%	72%	48%
12	Ability to use computing technology in communications.	58	66	70	15	2	12	3.8	2.9
		26%	30%	31%	7%	1%	5%	76%	58%
13	Ability to use computing technology in engineering analysis/design.	57	67	73	14	0	12	3.8	2.9
		26%	30%	33%	6%	0%	5%	76%	58%
14		57	49	84	18	3	12	3.7	2.5

	Ability to use state of the art techniques, and tools in engineering practice.	26%	22%	38%	8%	1%	5%	74%	**50%**
15	Apply the knowledge of probability and statistics.	48	59	77	22	5	12	3.6	**2.5**
		22%	26%	35%	10%	2%	5%	72%	**50%**
16	Knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.	51	72	72	15	2	11	3.7	**2.9**
		23%	32%	32%	7%	1%	5%	74%	**58%**
17	An ability to analyze, design, and implement systems containing hardware and software components.	59	56	74	21	1	12	3.7	**2.7**
		26%	25%	33%	9%	0%	5%	74%	**54%**

Table 2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 75%	**3.1** **61%**
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.8 76%	**3.0** **59%**
3	an ability to communicate effectively with a range of audiences	3.9 77%	3.2 63%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 76%	**3.0** **59%**
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	3.9 78%	3.3 66%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 76%	**2.9** **59%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	2.9 58%

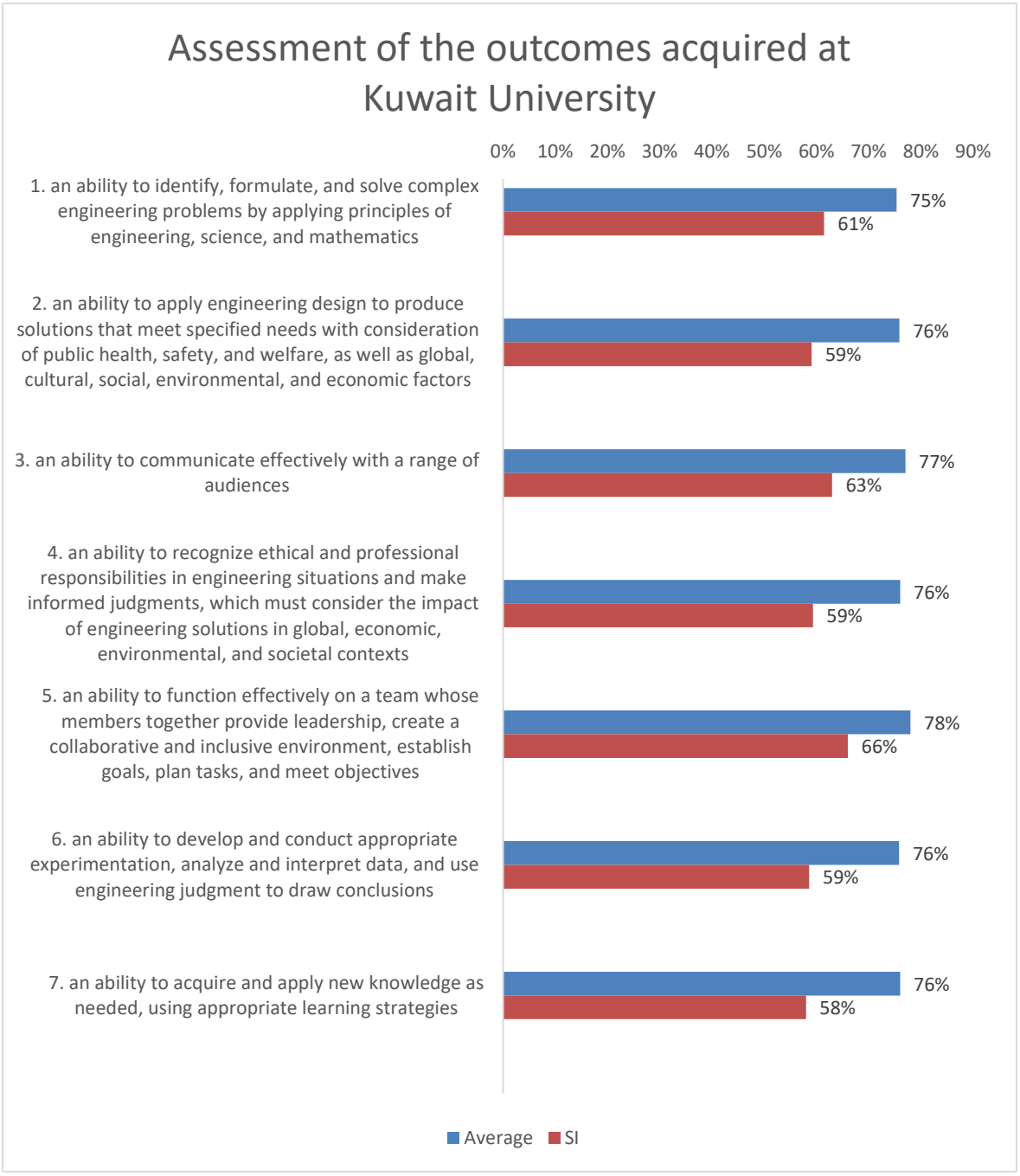
Assessment of the outcomes acquired at Kuwait University
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
75%
61%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
76%
59%
3. an ability to communicate effectively with a range of audiences
77%
63%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
76%
59%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
78%
66%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
76%
59%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
76%
58%
Average
SI

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	44	55	71	23	17	13	3.4	2.4
		20%	25%	32%	10%	8%	6%	68%	48%
2	- Computers (Programming and usage of software packages)	40	57	68	36	11	11	3.4	2.3
		18%	26%	30%	16%	5%	5%	68%	46%
3	- Humanities and Social sciences	41	58	73	24	12	15	3.4	2.4
		18%	26%	33%	11%	5%	7%	68%	48%
4	- General Engineering	51	70	66	18	6	12	3.7	2.9
		23%	31%	30%	8%	3%	5%	74%	58%
5	- Engineering within major	65	66	59	17	5	11	3.8	3.1
		29%	30%	26%	8%	2%	5%	76%	62%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		43	58	72	24	10	16	3.5	2.4
		19%	26%	32%	11%	4%	7%	70%	48%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	43	53	78	26	8	15	3.5	2.3
		19%	24%	35%	12%	4%	7%	70%	46%
8	- Career planning	42	51	75	29	9	17	3.4	2.3
		19%	23%	34%	13%	4%	8%	68%	46%
D. Equity of treatment by:									
9	- Academic administrators	44	52	76	28	10	13	3.4	2.3
		20%	23%	34%	13%	4%	6%	68%	46%
10	- Faculty	35	59	82	32	3	12	3.4	2.2
		16%	26%	37%	14%	1%	5%	68%	44%
11	- Teaching assistants and engineers	48	49	81	27	5	13	3.5	2.3
		22%	22%	36%	12%	2%	6%	70%	46%
12	- Fellow students	39	50	83	30	8	13	3.4	2.1
		17%	22%	37%	13%	4%	6%	68%	42%
E. Quality of the facilities:									
13	- Classrooms	23	37	82	31	37	13	2.9	1.4
		10%	17%	37%	14%	17%	6%	58%	28%
14	- Science laboratories	22	40	71	48	27	15	2.9	1.5
		10%	18%	32%	22%	12%	7%	58%	30%
15	- Engineering Laboratories	25	36	70	43	34	15	2.9	1.5
		11%	16%	31%	19%	15%	7%	58%	30%
16	- Computing facilities	30	35	72	46	25	15	3	1.6
		13%	16%	32%	21%	11%	7%	60%	32%
17	- Libraries	42	44	74	23	24	16	3.3	2.1
		19%	20%	33%	10%	11%	7%	66%	42%

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	28	74	50	31	24	16	3.2	2.5	73	110	30
		13%	33%	22%	14%	11%	7%	64%	50%	33%	49%	13%
2	Training office	32	83	58	20	7	23	3.6	2.9	54	119	40
		14%	37%	26%	9%	3%	10%	72%	58%	24%	53%	18%
3	Libraries	44	82	52	22	6	17	3.7	3.1	69	118	26
		20%	37%	23%	10%	3%	8%	74%	62%	31%	53%	12%
4	Bookstores	30	80	62	23	9	19	3.5	2.7	62	122	29
		13%	36%	28%	10%	4%	9%	70%	54%	28%	55%	13%
B. Administrative Offices:												
5	Students affairs office in your department	35	70	68	19	10	21	3.5	2.6	68	113	32
		16%	31%	30%	9%	4%	9%	70%	52%	30%	51%	14%
6	Administrative offices in the college	41	70	75	11	3	23	3.7	2.8	60	115	38
		18%	31%	34%	5%	1%	10%	74%	56%	27%	52%	17%
C. Other Services:												
7	Health services	36	64	53	24	12	34	3.5	2.6	49	115	49
		16%	29%	24%	11%	5%	15%	70%	52%	22%	52%	22%
8	Food services	22	49	54	43	34	21	2.9	1.8	55	120	38
		10%	22%	24%	19%	15%	9%	58%	36%	25%	54%	17%
9	Parking	14	24	30	42	89	24	2.2	1	69	86	58
		6%	11%	13%	19%	40%	11%	44%	20%	31%	39%	26%
10	Recreation and athletics	14	44	55	34	38	38	2.8	1.6	42	106	65
		6%	20%	25%	15%	17%	17%	56%	32%	19%	48%	29%
11	Others	18	25	37	19	14	110	3.1	1.9	39	85	52
		8%	11%	17%	9%	6%	49%	62%	38%	17%	38%	23%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

self learning-finding information's-how to make a search
1-learn teamwork. 2-good preparing for exams and real life.
Mathematics, Presentations, writing reports
writing reports , presentation ,
-communicating skills -the ability to do group and individual work -system modeling
Teamwork and programming
mathematical skills
Mathematics and physics in my major
self study,presentation
being more autonoums
time management
time managment
no thing
being independent and do the work although difficult circumstances.
being independent and do the work although difficult circumstances.
learn C++ language - learn Arduino Software (IDE) - using microcontroller to implement ATM - using arduino to implement Voltmeter, weather station, charger and robotic hand.
An ability to analyze, design, and implement systems containing hardware and software components.
time management communication skills
Engineering
I've learned to work with difficult people in groups.

Mathematics Critical Thinking
Matlab simulink and other programs
teamwork patience, perseverance
Teamwork
Elevated thinking and team work
Analysing - self learning and reliance.
Lean how to Communicate effectively with my colleagues in project - lead a group
Patience
time management
solve engineering problems ,team work,training course
To communicate with different people in any condition. To be patient. To be creative.
i had learned too many stuff in the program
Memorizing technique
communication , self dependent skills
to communicate with students how to organize my time how to be patient
programing work as an engineer and learn
programming microcontroller
Team work, writing reports ,and oral presentation
Engineering skills
Engineering skills
Design a system,Ability to use computing technology in communications.
skills at connecting electrical circuits and designing systems and programing
Self dependency
De indepandant
To be patient and maintain my professionalism when dealing with people

written reports,oral presentations).

working under pressure

writing reports , presentations, search for the information by my self

.....

Communication skills

Pro

communication skills

Solve problems

Communication for skills

Learn how to work as a team

Learning communication skills

Learning communcation skills

Word office

How can we connected what we have learned theory and what are this in the real life

Writing reports, doing presentations, design, working under the pressure, self confidence, and working with groups.

practical applications

- Communication skills (reports & presentations). - System implementation using computer (software). - Circuits and signals analysis (electrical circuits, magnetic circuits and electronic circuits) - Digital and analog systems comparison, advantages and disadvantages and there applications. - Contemporary issues and how to deal, solve or reduce these issues, such as environmental, economics....etc. - Knowledge of Power systems in Kuwait (steam plant at AL-Doha power plant, solar plant at K.O.C.) - Manufacturing some of power systems elements (Switch-gears, Circuit-breakers, Current/Voltage Transformers, Power transformers and distribution transformers) at Al-Ahleia Co. (EE399 Field training course).

presenting - dialogue- plain dealing

self learning, problems analysis and programming

solve engineering problems , written reports and oral presentation skills .

be able to deal with engineering problems in real life

searching in papers and journals. writing research papers. applying mathematics and physics in designing systems to satisfy specific requirements.

Desing sys.

idont wont to tell any thing

-Oral Presentation -Team Work -Mathematical Skills -How to analyze and solve engineering problems

C++ and matlab languages

hard worker

Communication skills and interpersonal skills. I also learned the importance of taking good notes.

There is no

Being good in mathmatic

Learnd how to solve problems

cooperation

C++

Communicating, team work, solving problems, engineering stuff.

Self study And take the responsibilty of your self , involve in teams and groups , seeks for all the available refrences to get knowledge, respects doctors and the TA's since they are trying there best to help us, cooding and researching .

time managing, relating engineering to life

C++

Team work

writing , reading , searching ,lisitening

Arduonio

Teamwork. Time management. Research.

Dealing with people

Team work

Improve my ability to design

Patience Self reliance

be involve in group work

know how to solve problems and improve teamwork skills

communicating with companies due to our need of sponsorship

Lisps

How to act as a team and listen to others' opinions and act in judgment in difficult situations

The spirit of cooperation Accuracy and diligence

the ability to see things from different point of view

To be patient

problem solving

programming every thing related to the power systems

Mathematical problems, algebra, how to write reports and oral presentation, how to deal with problems and solve them , dealing with orcad and matlab

communication skills , group working .

COMMUNICATION SKILLS

COMMUNICATION SKILS

Digital logic , c++, arduino

Lisps

Pspice Arduino C++

How to apply what i learned from taken courses in laboratories. And how to think of a solution for life problems using what i learned from my engineering department, and able to work in teams, have skill in time management , write reports and do presentations.

team work , oral presentation

Proframming and other programs related to electrical engineering

Software programming

Team work

Software programes

Good present

Searching

Coding, designing

coding , designing

programing

team work

Writing reports , inroducing presentations

Team work- Data analysis- Designing electrical systems based on required specifications

Arduino, processing, matlab and C++.

solving problems how to think to solve the problems writing reports group working self confedent more knowledge social issues responcibelties never give up

ability to work as a team ,leader ship ,communication skills,(how to create ideas , design it and apply it)

teamwork

how to deal with problems in engineering way.

team work , design .

team work, design

how to deal with my group members, be patient, the organization our time

I think there is no important skills

More practical than theoretical training

It helps me in the 497 (graduating course)

How to communicate and present

Teamwork Oral presentation Report writing

Writing skills Oral presentation skills

programming in arduino uno, Matlab and altera, able to do basic programs.

Writing skills, Oral presentations and knowing how to solve problems.

communication skills

debating, communication with other students, seeking for knowledge
team work + patience :) Solving problems without any physical actions +
Accurate work
- How to connect the circuits. - how to deal with programming. -I learned self-reliance.
team work
i learned how to think good and how to fix any problem in cods and how to programming
I learned a lot of engineering information, especially in theory. I also learned some practical applications. I learned some skills such as system design and use of engineering tools and understanding of some theories
comminucate with people
Writing reports , do research , solving problems and cooperation with team members
Studies
c language
designing , dealing with people

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

field work training
to be group leader
team working and communication skills
training more outside
work experience
preparation for work after graduation. all what we studied is theoretical.
Not prepared to work after graduation. All what we learned is theoretically.
java language - 3d design program - fixing electrical machine - work on real projects (most were imaginary using program matlab and other software)
not available

do not interested in the practical part in the courses .

Matlab

We did not get to learn so many things that were only taught by paper because the poor condition the Labs were in and the lack of funding.

Programming Practical applications

Better learning skills

I feel like I have not had enough hands on experience in my field

Practical work

Practical application of my major

Communicate with other students from another majors.

The skills that I gained from Kuwait university is more than enough

Cooperation, perseverance and patience

work experience

Participation in external courses

Didn't join a sport club .

no useful skills we did not get the chance to learn in KU

Practical engineering skills (i.e field training)

did not get enough skills in laboratories

training course

how to create a chip in lab

dealing with some software

Learn group work

Learing how to search

Work environment preparation and actual applications of learnt material

i'm satisfied with my skills

i don't know

Learning how to speak frensh

Pro

Business management

Writting

No

Real life applications and experiments.

To force the selection of materials we do not want to complete the schedule ... Educational trips to the electrical stations

- Renewable energy course, which is not available.

competitions that the university supported

Designing physical systems

self learning

did not get use to with the practical engineering problems

learning more on using matlab and writing codes. conduct experiments on new devices.

Design process

idont wont to tell any thing

-Apply some of the subjects we study in real life

Did not learn how to do oral presentation

take more training courses

Some electrical engineering electives

There is no

Drawing

Didnt have a chance to understand all the subjects

ethics

No skills

More about economics in engineering in real life, more applications of engineering in real life desing497 is not enough.
We needs more oral presentation and rise our english level .
writing a formal paper with a doctor to be published
Learning english language
i think nothing
The speaking skills
Implementation of everything learnt in real life.
Having fun
Programming
poor practical work
working by our hands in the lab, all the materials were theoretical part not practical
teamwork
No thing
Development courses dealing with others in work and self development
make a connection between what we have learned and what is related to in real life
graphic design
digital communication
I wish to improve my musician skills but i have no chance in kuwait university
sport game
BASKTBALL
PAINTING
No
Matlab

I was not able to learn more about programming as an electrical engineer, also need courses in 3d sketching and some mechanical engineering classes to help through design courses, i was not able to take some classes from other departments in kuwait university that i think might help me better in engineering or at work.

work shop

Not available

Searching for format

Draw

Implement power system

power system

visiting real sites related to our major

Practice and learning other languages

Software Programming

travel abroad

every skills I learn it very well.

i dont know

software programming , traveling to get experience (it is allow only for the students who have high gpa and this is nit fair)

programming

I think if the labs has been well prepared I'll learn much more because most of the machine does not work , also a lot of programs are not available.

Humanities and Social sciences

Humanities and Social sciences

speaking effectively.

Time management

More practical than theoretical training

Research

Researching skills

Some Laboratory work

football

Programming + team work not only in Design courses + presentations

I did not have the opportunity to take elective subject in other fields.

Do not apply a lot of information and theories in practice

do practical things

Respect to the law

excel

creativity programming

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

nothing to add

Parking parking aprking

Poor parking

change some doctor

being more practical

being more partical

course on 3d designing & 3d printing

no suggestion

more programming classes

Make a whole new academic program.

Better doctor skills

parking

I have no complaints or comments

Provide an elective course of manual and practical application for students such as electrical connections and the use of actual motors and generators

Using newest technologies in learning.

I have not

being more practical

academic programs at Kuwait university are very good

No suggest

Marketing and giving the chance to the small businesses .

i dont have any comments

I suggest you to activate remote learning to get rid of many issues like the parking ... etc

-adding more training courses for students for example after every 40 credits he passes he should take a training course to apply everything he learned practically in working fields , I think that will make the student feel more familiar with his major and will make him ready for his job after graduation. -increase the practical learning that depends on researches and real life applications more than only theoretically learning. -increasing tutorial sections for every course is a must.

prepare good laboratories

the registration

transfer to al-shedadiah

try to apply new sciences

Poor website

We need parking we need supervision of exams and material taught

doctors should try harder to make the students learn well

please do not hire a rode doctor pls stop the bad doctors from being animals

Have a bigger and modern class rooms

develop the labs

No thing

Develop classes

Cleannig the classes and the labs

Develop the labs

Develop the labs

Writting course

Make it necessary for all students

I suggest to apply more real life applications and experiments.

Increased practical applications rather than theory

take care of food that offers in cafeterias solve the parking issue solve the problem of closed class and the subjects

More English courses must be added to improve student's communication skills. Also, more design courses need to be added to the major sheet.

provide more technologies to get the students up to learn faster .

more practical practice in courses

assigning more practical projects that students must do during the courses. Improving the labs. Allowing researches during courses. opening more chances to do internships.

Improve An ability to analyze, design, and implement systems containing hardware and software components of student

idont wont to tell any thing

Improve the team work and not put all the grades on the exams

please put parking make everything online

For the classes that are taught by more than one professor in the course, i feel like their should be one exam for all classes, and the exam should be corrected by each of the doctors teaching the classes(like circuit).

Doctors need to be chosen more carefully

More professional people

Improve parking and food service

Be more class and proper facility.

Learing is not only dealing with theories we need to learn them from practical point of view and more experments

some courses really need to relate engineering with real life cases not just math.

Teaching more practical things not only theoretical stuff.

online courses

We need parking

Improve the registration of courses

increase practical work

try to make students to work by them selves from begining to take the final project with good skills.

improve the role of the student's affair office in each department and the administrative office in Kuwait university

Establishing practical courses for all university specialties

make more practical sections than theoretical

needs more sufficient labs

to do the academic program in 2 courses

TO HAVE 2 ACADEMIC PROGRAM IN TWO COURSE

TO HAVE 2 ACADEMIC IN TO 2 COURSE

Please take care for main subjects of the courses for students

A course of Matlab usage would be very helpful to the students

Just renew our laboratories, offer us more classes that might help us get better depending on our major, language, communication and speaking classes are needed badly for most majority of students. We need more professional engineers that can really help with our studies and can advice us in a way we can benefit from them and gain new skills. And we need more activities too.

Clubs are needed

More lab,more parking

To be a good University you should change all employees and all faculty :)

more and near car parking please make our life easier..

Some acadmic members are not well prepared to teach students

parking , resturants and rest areas

cooperate with students by administration set unified rules fot the material that shouls every doctor follow it

constraint on the live working not only memorieas for examing

a good govrnmental job

the services need to be improve a bit, like the administrative offices should call student when they have GPA below 2 and set a plain for them to help them

parking ,food

Parking,Food services,Health services

build a workshop to help the students in design for every major

Reduce the percentage of final exam

More practical than theoretical training

Increasing the numbers of (497)labs

Was a good overall experience.

increase the 497 labs.

Better labs, better classes, providing equipment for learning , parking

do the academic program in 2 courses

Have more labs .. apply the theories as expermentals

They should provide more parking areas (i parked inside the college only this year which is the last year) .. The laboratories should be clean and neat so the students can study and work with more comfortable + Some of the drs with all of my respect cant even explain or teach the students very well so thats why most of the students tend to go to private lectures + Some of the Drs are not fair enough, they grade the students with their own mood.. we have suffered enough

Suggest a suitable environment to train students to work in successful engineering projects to give the student sufficient opportunity before graduation.

Take more practical care.

give more practical work

We need more activities and clubs that satisfy our hobbies and interest.

I think we need more time to know the programs .

provide the communications skill

Industrial and Management Systems Engineering Program Exit Survey Results

For the Academic year 2017-2018

October 2018

INDUSTRIAL & MANAGEMENT SYSTEMS ENGINEERING MISSION & VISION

Mission

The ***mission*** of the Industrial and Management Systems Engineering Program is to graduate competent students with capability to work in leading local and international organizations and potential for lifelong learning; and to provide the faculty with the required resources and environment to excel in teaching, research, and community service.

Vision

The vision of the program is to be recognized as a leading educational institution in Industrial and Management Systems Engineering in the region; attracting high-caliber students and faculty members.

To satisfy the *Mission* and *Vision* of the Department and to meet the needs of its constituents, three *Educational Objectives* have been adopted after consulting with faculty, employer representatives, and studying ABET models of leading educational institutions. In addition, a set of *Student Outcomes* are developed.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The graduates of the IMSE program will:

1. Have engaged in careers in a broad range of Industrial and Management Systems Engineering areas, or successfully pursued advanced studies.
2. Have assumed leadership roles, and engaged in continuous professional development in response to technological and social challenges.
3. Have contributed to the welfare of society and the development of the profession through active participation in societal and/or professional activities.

Student Outcomes

Achievement of the following student outcomes would indicate that the graduates are equipped with the necessary knowledge and skills to achieve the program educational objectives.

a. Ability to apply knowledge of mathematics, science and engineering .
b. Ability to design and conduct experiments related to deterministic or stochastic systems, as well as to analyze and interpret data.

c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. Ability to function on multidisciplinary teams.
e. Ability to identify, formulate and solve Industrial and Management Systems Engineering problems.
f. Understanding of professional and ethical responsibility.
g. Ability to communicate effectively.
h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i. Ability to engage in life-long learning and appreciate the need for continual self-development.
j. Knowledge of contemporary issues.
k. Ability to use the techniques, skills, and the modern engineering tools necessary for Industrial and Management Systems Engineering practice.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Industrial and Management Systems Engineering**

*** Number of Students participated in the survey:**

63	Male	12	19%
	Female	48	76%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	25	40%
Intend to work in the private sector.	40	63%
Intend to go to graduate school.	12	19%
Intend to start my own business	20	32%
Intend to do other things	5	8%
study new languages / attend workshops		
complete master		
I intend to get a master's degree		
Get my Phd		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

*** Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	12	27	20	0	0	4	3.9	3.3
		19%	43%	32%	0%	0%	6%	78%	66%
2	Design and conduct experiments, as well as to analyze and interpret data.	12	27	18	3	0	3	3.8	3.3
		19%	43%	29%	5%	0%	5%	76%	66%
3	Design a system, component, or process to meet desired needs.	12	25	19	1	2	4	3.7	3.1
		19%	40%	30%	2%	3%	6%	74%	62%
4	Function effectively in teams.	24	19	13	3	1	3	4	3.6
		38%	30%	21%	5%	2%	5%	80%	72%
5	Identify, formulate, and solve engineering problems.	20	21	13	6	0	3	3.9	3.4
		32%	33%	21%	10%	0%	5%	78%	68%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	25	12	17	6	0	3	3.9	3.1
		40%	19%	27%	10%	0%	5%	78%	62%
7	Communicate effectively (written reports).	16	16	20	5	3	3	3.6	2.7
		25%	25%	32%	8%	5%	5%	72%	54%
8	Communicate effectively (oral presentations).	16	18	21	3	2	3	3.7	2.8
		25%	29%	33%	5%	3%	5%	74%	56%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	28	13	16	1	2	3	4.1	3.4
		44%	21%	25%	2%	3%	5%	82%	68%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	19	16	20	2	2	4	3.8	3
		30%	25%	32%	3%	3%	6%	76%	60%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	13	18	19	5	3	5	3.6	2.7
		21%	29%	30%	8%	5%	8%	72%	54%
12	Ability to use computing technology in communications.	14	21	18	3	2	5	3.7	3
		22%	33%	29%	5%	3%	8%	74%	60%
13	Ability to use computing technology in engineering analysis/design.	10	27	19	3	0	4	3.7	3.1
		16%	43%	30%	5%	0%	6%	74%	62%
14	Ability to use state of the art techniques, and tools in engineering practice.	9	20	24	4	1	5	3.6	2.5
		14%	32%	38%	6%	2%	8%	72%	50%
15	Apply the knowledge of probability and statistics.	22	19	13	4	1	4	4	3.5
		35%	30%	21%	6%	2%	6%	80%	70%
16	A competency to apply Industrial and Management Systems Engineering techniques and tools in divers types of organizations with focus on quality engineering and management, productivity and logistics, ergonomics and safety, and engineering economical decisions.	25	15	16	4	0	3	4	3.3
		40%	24%	25%	6%	0%	5%	80%	66%

Table 2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 77%	**3.3** **66%**
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.7 74%	**3.1** **61%**
3	an ability to communicate effectively with a range of audiences	3.7 73%	2.8 55%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 76%	**3.0** **61%**
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.0 80%	3.6 72%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.7 74%	**3.0** **61%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	3 60%

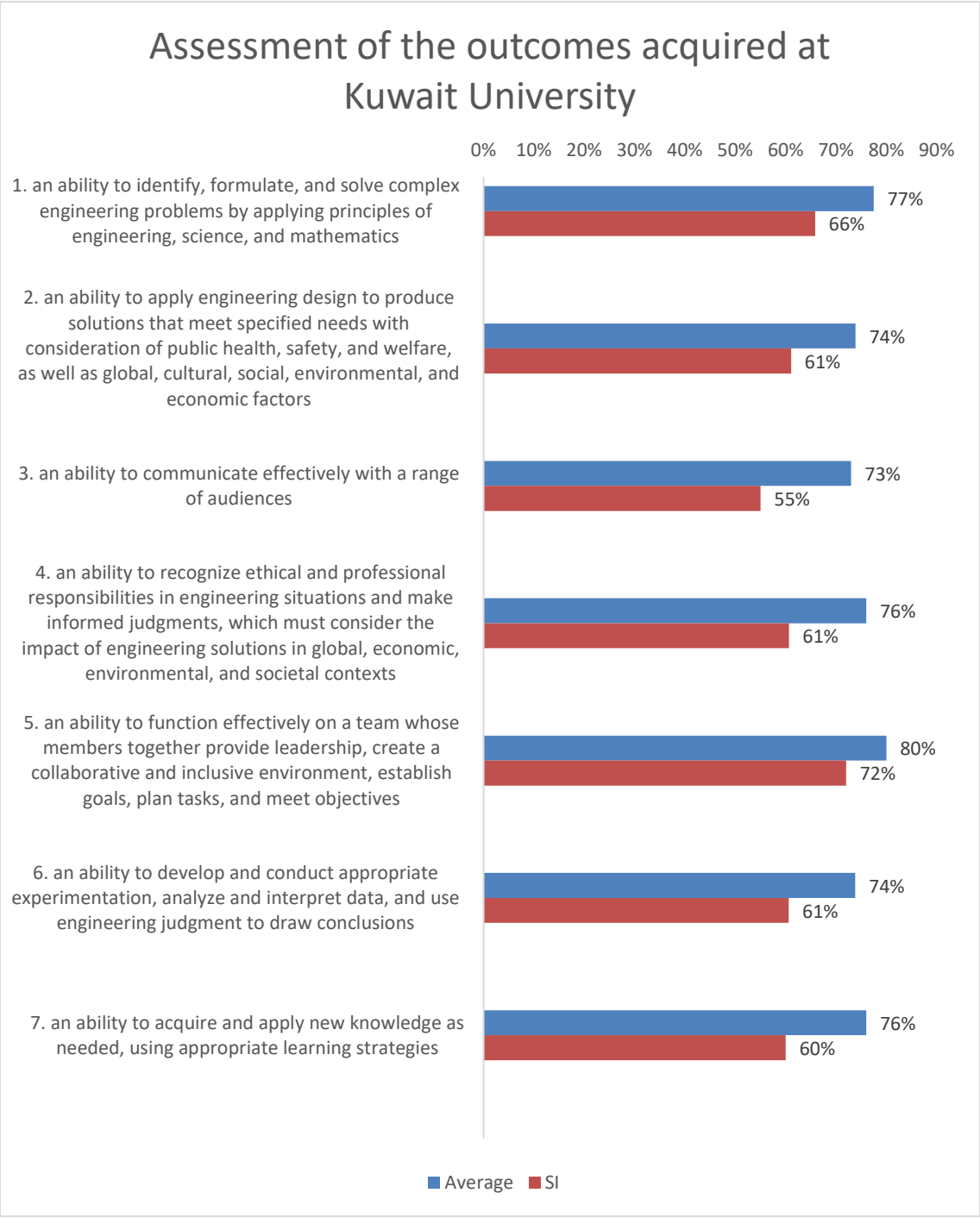
Assessment of the outcomes acquired at Kuwait University
0% 10% 20% 30% 40% 50% 60% 70% 80% 90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
77%
66%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
74%
61%
3. an ability to communicate effectively with a range of audiences
73%
55%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
76%
61%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
80%
72%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
74%
61%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
76%
60%
Average
SI

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	9	4	17	13	16	4	2.6	1.1
		14%	6%	27%	21%	25%	6%	52%	22%
2	- Computers (Programming and usage of software packages)	2	10	27	12	7	5	2.8	1
		3%	16%	43%	19%	11%	8%	56%	20%
3	- Humanities and Social sciences	5	12	25	8	7	6	3	1.5
		8%	19%	40%	13%	11%	10%	60%	30%
4	- General Engineering	5	17	27	9	2	3	3.2	1.8
		8%	27%	43%	14%	3%	5%	64%	36%
5	- Engineering within major	17	22	15	3	3	3	3.8	3.3
		27%	35%	24%	5%	5%	5%	76%	66%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		6	15	21	9	6	6	3.1	1.8
		10%	24%	33%	14%	10%	10%	62%	36%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	6	15	28	7	4	3	3.2	1.8
		10%	24%	44%	11%	6%	5%	64%	36%
8	- Career planning	3	9	26	14	6	5	2.8	1
		5%	14%	41%	22%	10%	8%	56%	20%
D. Equity of treatment by:									
9	- Academic administrators	4	20	24	6	5	4	3.2	2
		6%	32%	38%	10%	8%	6%	64%	40%
10	- Faculty	6	16	25	6	6	4	3.2	1.9
		10%	25%	40%	10%	10%	6%	64%	38%
11	- Teaching assistants and engineers	7	14	24	8	7	3	3.1	1.8
		11%	22%	38%	13%	11%	5%	62%	36%
12	- Fellow students	8	15	25	8	3	4	3.3	1.9
		13%	24%	40%	13%	5%	6%	66%	38%
E. Quality of the facilities:									
13	- Classrooms	0	8	15	18	19	3	2.2	0.7
		0%	13%	24%	29%	30%	5%	44%	14%
14	- Science laboratories	0	10	20	10	18	5	2.4	0.9
		0%	16%	32%	16%	29%	8%	48%	18%
15	- Engineering Laboratories	1	12	15	16	14	5	2.5	1.1
		2%	19%	24%	25%	22%	8%	50%	22%
16	- Computing facilities	1	5	26	16	12	3	2.5	0.5
		2%	8%	41%	25%	19%	5%	50%	10%
17	- Libraries	4	15	18	11	11	4	2.8	1.6
		6%	24%	29%	17%	17%	6%	56%	32%

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	6	17	11	20	5	4	3	1.9	18	28	14
		10%	27%	17%	32%	8%	6%	60%	38%	29%	44%	22%
2	Training office	6	20	14	7	3	13	3.4	2.6	5	33	22
		10%	32%	22%	11%	5%	21%	68%	52%	8%	52%	35%
3	Libraries	11	22	15	3	5	7	3.6	2.9	12	36	12
		17%	35%	24%	5%	8%	11%	72%	58%	19%	57%	19%
4	Bookstores	7	15	17	5	6	13	3.2	2.2	8	33	19
		11%	24%	27%	8%	10%	21%	64%	44%	13%	52%	30%
B. Administrative Offices:												
5	Students affairs office in your department	11	21	16	4	4	7	3.6	2.9	9	39	12
		17%	33%	25%	6%	6%	11%	72%	58%	14%	62%	19%
6	Administrative offices in the college	7	24	18	4	5	5	3.4	2.7	10	35	15
		11%	38%	29%	6%	8%	8%	68%	54%	16%	56%	24%
C. Other Services:												
7	Health services	5	17	17	9	2	13	3.3	2.2	10	22	28
		8%	27%	27%	14%	3%	21%	66%	44%	16%	35%	44%
8	Food services	4	13	19	17	7	3	2.8	1.4	17	30	13
		6%	21%	30%	27%	11%	5%	56%	28%	27%	48%	21%
9	Parking	0	4	6	12	34	7	1.6	0.4	31	14	15
		0%	6%	10%	19%	54%	11%	32%	8%	49%	22%	24%
10	Recreation and athletics	4	3	11	9	15	21	2.3	0.8	4	23	33
		6%	5%	17%	14%	24%	33%	46%	16%	6%	37%	52%
11	Others	3	4	11	5	3	37	3	1.3	5	21	21
		5%	6%	17%	8%	5%	59%	60%	26%	8%	33%	33%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Engineering How to deal with different types of people

How to deal with both engineering and business problems .Also, planning for a new project or product as well as the manufacturing processes .because I'm interested in both engineering techniques and private business, I think Industrial engineering is the best and most suitable major for this kind of study .I love industrial engineering even more after studying all the classes and learning more about it.

Patience

---

writing reports , patience , presentation skills,

I learned how to analyze and criticize systems, moreover I learned how to communicate effectively, and plan ahead.

I've learned so many things to be honest, I feel like Kuwait University gives the best education in terms of information , yet the environment is a bit uncomfortable. I've developed excellent ergonomics, safety, statistical, speaking, and mathematical skills.

---

well written reports. presentation's speakings. socializing with people. the ability to think outside the box.

- Presentation skills - Writing a technical reports

I learnt self-independence because of poor of support from faculty members and administrators. I have learnt important software skills within my major. I also have learnt skills that benefit me for career.

Team work

Teamwork

---

presentation skills.

---

use some tools such as arena

Team work

Designing, how to solve problems and presentation

Designing, how to solve problems and presentation

Presenting presentations, improving my English

---

communication and deal with others

Interacting and communicating with people with confedince.

Mathematical and problem solving

comuunication skills, being honest

work in team presentation skills

Interpersonal skills Time management

Patience and self-confidence

presentation skills, teamwork, and the ability to execute a project on my own.

ability to learn new skills and to understand and solve problems

- analyzing current situation - proposing tools learned in the program to enhance the system i am analyzing - management - it changed the way i look at things!

Cummnication with adudience and group work

Leadship

Leadship

Communication, work in group

Solving engineering problems

Team work, proper use of softwares,and tools.

Team work, oral presentation, writing reports, self study.

working in teams / time management

Social skills, team work, excell, problem solving.

Social skills, team work, excell and autocad

quality control - quality improvement - safety - management - cost analysis - facility planning

able to become a good team leader , present well in presentations , able to manage the limited time , and good at data collection and data analysis.

Communication skills, Technical thinking and presenting

leadership

System analysis and quality improved.

Time is very important in real life

all industrial skills

Responsible and self-reliance

responsibility , self-reliance

Social and presentation skills

nothing is very important i got from collage

Skills, abilities, and attributes

communicate

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Real life/ hands on applications and experiences

How to complete MBA or PHD in future life (where should we go , talk to)specially if you have a good gpa.

practical skills

more practical work than just theories

Applications of projects and extending senior design class into two semsters.

improving my technological skills. sport's activities.

- Design skill

Involvement of student through projects. Professional report writing. Career guidance and CV writing. Convincing talents and skills.

Site visits

performing a real life case study and implementing what i learnt in real life problem

other tools such as EFQM

More trainig course

3d modeling design

Some software programs

apply what we learned on real life

Real life applications.

Using advanced softwares for engineering problems

dealing with doctors like daughters not students

I wish we had more English classes

public speaking skills.

designing and ability to take a measurement without using tools

- giving good/creative presentations (drs were always easy- they did not emphasize on creativity, the class did not put much effort) - good report writing (students are very weak in english ie: spelling, grammar, terms)

Working as normal students...because we are always under stress in Kuwait university

Practical application

Presentation

Attend and listen carefully

Connecting all of the subjects together and matching them to real life situation(senior design is not enough)

Laboratory experiments.

basic first aid

Presentation skills.

speak English fluently

Due to doctors with lack of interest in teaching students, I unfortunately didn't get the chance to learn about Facility Planning.

No things

There is no useful skills that I did not get expect a change for the better

There is no useful skills that I did not get

We need to learn more about how to write reports

spanish class as elective subject

some safety skill

abilities and attributes

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Advanced technology Renew engineering curriculum every once in a while Eliminate unnecessary engineering courses from majors that do not need them

---

I wish that KU had a more updated labs/classes/devices because they really affect the study process.

---

the program of industrial engineering is old and not updated

---

going outside of the campus, seeing real business management, workshops

---

Not accepting "WASTAS". Its extremely annoying and unfair knowing that students with a low education level might take the easy way out and special treatment which is completely unfair.

---

focus more on what the subject will benefit me in the future, rather than only teaching without a meaningful porpose.

Students need more support from faculty members and administrators through thorough guidance and providing freshmen seminars to understand their major sheets and campus laws and regulations.

Self learning

---

i suggest to change the grading system where students should be evaluated on other stuff than exams such as presentations,projects and case study where the student can apply his/her skills and show more than just answering exam questions

---

I suggested to use more technology

More doctors

Change the grading system which force the instructor to mark at least 40 point on the final exam Build multilevel parking Hide the name of instructor when student register their course Punish any instructor who rise grades some students without other students

---

make a turning course

Focus on the facilities

---

more parking, mood services

Industrial engineering department needs a new regulations that is for the students benefit. they need to open courses based on the students needs not the faculty.

I would suggest that all faculty members treat all students respectfully with no discrimination or bias, also I wish they would take other courses the students are taking under consideration when they set dates for midterms and so on. Also, the cafeteria needs to be taken care of as much as any other building in the university, the hygiene is very poor.

Registration is very bad and you should test the doctors before hiring them

paying more attention to projects and presentations than on midterms and exams will be really effective in helping us prepare for the practical world.

focus on quality and not quantity in education, having an acceptance test with high standards for each major

- improve the level of students intellectually - dont let them focus on the grades, let them enjoy the learning process - be creative in your way of teaching - enhance the writing skills of students & their english

They must reduce the number of midterms to one midterm only and replace them with projects that can help students in their real life

Parking More shaded area with AC conduct the studies in a practical way

Improve the system

Control and survelance of the way instructors teach the programs and conduct examinations

Improved facility layout is needed to accommodate the huge number of students.

a simple program that facilitates thing for students and doctors

Improve the website - the byforce system and parking for sure

choose the faculty carefully and redesign the class rooms with bright colors to be more joyful

New major sheet will be perfect , if it will be effective!

Better monitoring of doctors. I feel like they should submit their full curriculum and teaching plan to the HOD and submit weekly reports on their status along with student grades (by weekly quizzes) otherwise we wouldn't gaurantee a truthful interest in teaching.

Give the right to everything . Evaluate the university in all respects .

Give the right to everything . Evaluate the university in all respects .

A better faculty members

you should have more parking and doctors who take care of ethical responsibilities

more parking :)

Mechanical Engineering Program
Exit Survey Results

For the Academic year 2017-2018

October 2018

MECHANICAL ENGINEERING MISSION & VISION

Mission

The ***mission*** of the Department is to provide a quality and broad engineering education, to conduct strong basic and applied research, and to serve the industry, the profession and the community at large through innovative solutions, dissemination of knowledge, and advancement of science and technology.

Vision

The ***vision*** of the Department is to gain regional and international recognition for providing a quality engineering education, outstanding research programs and exceptional community service. In addition, it is envisioned that the graduates of the Program will be successful in their professional careers and/or graduate studies, prepared for professional creativity and leadership, and lead productive lives that contribute to improvement of society.

The Mechanical Engineering Department is committed to providing a healthy academic environment by attracting high quality students, faculty and staff. The curriculum is thoroughly based on mathematics, science, engineering science and design to fully-prepare students for their careers.

Educational objectives and student outcomes

Educational Objectives:

The graduates of the ME program will:

1. Engage in productive careers in a broad range of mechanical engineering areas in public and private sectors in Kuwait, or successfully pursue advanced studies and careers in academia or in other research environments
2. Advance in responsibility and leadership in their careers, and engage in continuous professional development to respond to rapidly evolving technological and social challenges
3. Contribute to the welfare of society and the development of the profession through responsible practice of engineering and involvement in professional organizations.

Student Outcomes

The ME program graduates will have:

1. An ability to apply knowledge of mathematics, science, and engineering
2. An ability to design and conduct experiments, as well as to analyze and interpret data
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. An ability to function on multidisciplinary teams
5. An ability to identify, formulate, and solve engineering problems
6. An understanding of professional and ethical responsibility

7. An ability to communicate effectively
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. A recognition of the need for, and an ability to engage in life-long learning
10. A knowledge of contemporary issues
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

ABET (2017-2018) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies..

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Mechanical Engineering**

*** Number of Students participated in the survey:**

53	Male	31	58%
	Female	22	42%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	31	58%
Intend to work in the private sector.	39	74%
Intend to go to graduate school.	21	40%
Intend to start my own business	20	38%
Intend to do other things	2	4%
every thing		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

* **Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	16	24	12	1	0	0	4	3.8
		30%	45%	23%	2%	0%	0%	80%	76%
2	Design and conduct experiments, as well as to analyze and interpret data.	11	13	20	9	0	0	3.5	2.3
		21%	25%	38%	17%	0%	0%	70%	46%
3	Design a system, component, or process to meet desired needs.	11	16	20	6	0	0	3.6	2.5
		21%	30%	38%	11%	0%	0%	72%	50%
4	Function effectively in teams.	22	14	14	3	0	0	4	3.4
		42%	26%	26%	6%	0%	0%	80%	68%
5	Identify, formulate, and solve engineering problems.	14	20	16	3	0	0	3.8	3.2
		26%	38%	30%	6%	0%	0%	76%	64%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	19	19	5	10	0	0	3.9	3.6
		36%	36%	9%	19%	0%	0%	78%	72%
7	Communicate effectively (written reports).	16	14	17	6	0	0	3.8	2.8
		30%	26%	32%	11%	0%	0%	76%	56%
8	Communicate effectively (oral presentations).	11	13	18	8	2	1	3.4	2.3
		21%	25%	34%	15%	4%	2%	68%	46%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	17	17	13	5	1	0	3.8	3.2
		32%	32%	25%	9%	2%	0%	76%	64%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	16	16	15	5	1	0	3.8	3
		30%	30%	28%	9%	2%	0%	76%	60%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	11	13	18	9	2	0	3.4	2.3
		21%	25%	34%	17%	4%	0%	68%	46%
12	Ability to use computing technology in communications.	14	18	11	8	2	0	3.6	3
		26%	34%	21%	15%	4%	0%	72%	60%
13	Ability to use computing technology in engineering analysis/design.	10	21	13	9	0	0	3.6	2.9
		19%	40%	25%	17%	0%	0%	72%	58%
14	Ability to use state of the art techniques, and tools in engineering practice.	8	18	16	10	1	0	3.4	2.5
		15%	34%	30%	19%	2%	0%	68%	50%
15	Apply the knowledge of probability and statistics.	5	18	13	15	2	0	3.2	2.2
		9%	34%	25%	28%	4%	0%	64%	44%
16	An ability to assume responsibility at an entry level in the areas of Mechanical Engineering that are important to Kuwait and the region, such as the design, analysis and maintenance of machinery, refrigeration, air-conditioning and desalination systems.	14	19	15	3	1	1	3.8	3.2
		26%	36%	28%	6%	2%	2%	76%	64%

Table 2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.7 73%	**3.0** **61%**
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.6 72%	**2.6** **51%**
3	an ability to communicate effectively with a range of audiences	3.6 72%	2.6 51%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.7 75%	**3.1** **61%**
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.0 80%	3.4 68%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.6 72%	**2.6** **52%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	3 60%

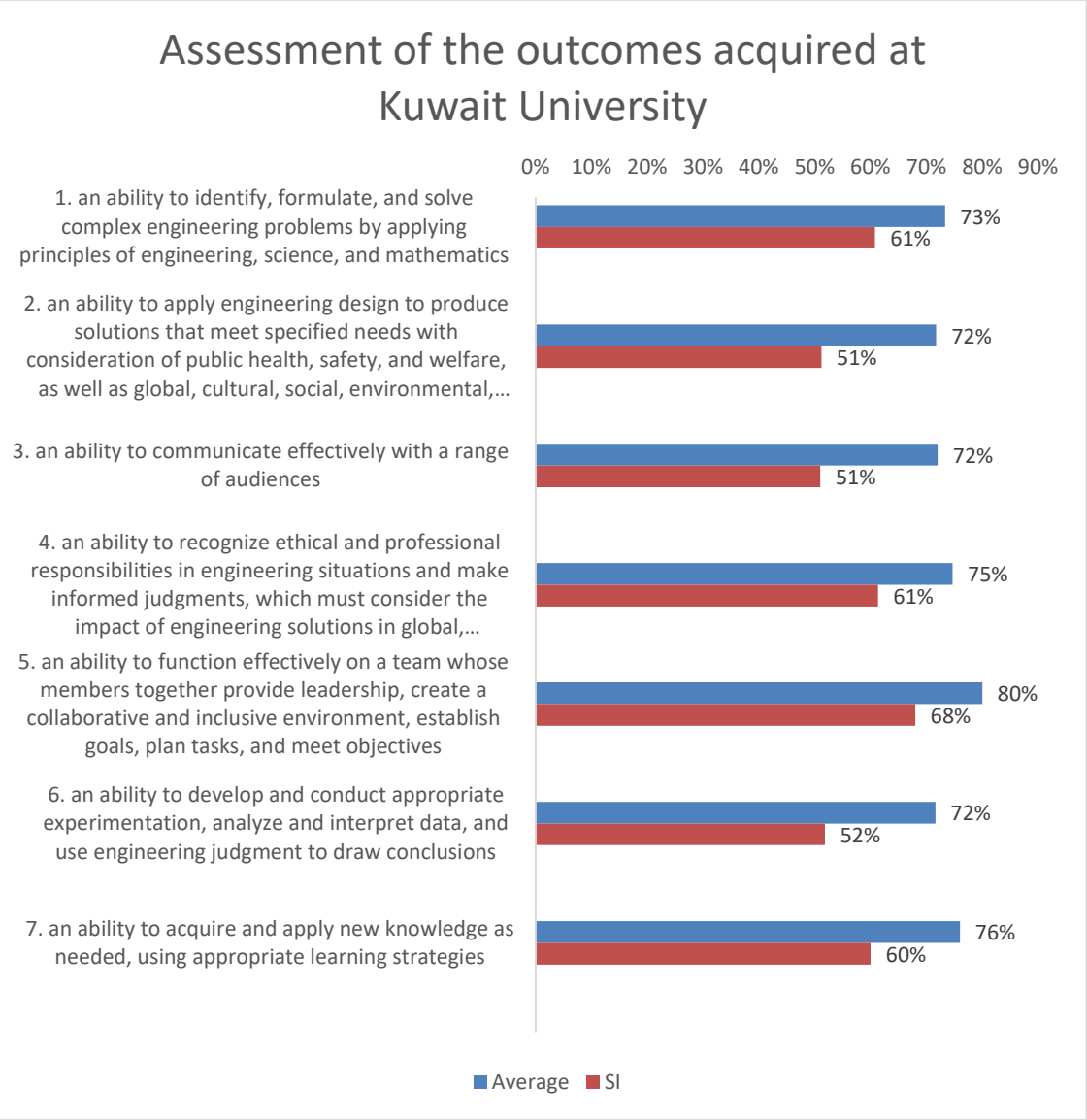
Assessment of the outcomes acquired at Kuwait University
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
73%
61%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental,…
72%
51%
3. an ability to communicate effectively with a range of audiences
72%
51%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global,…
75%
61%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
80%
68%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
72%
52%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
76%
60%
Average
SI

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	12	16	12	9	4	0	3.4	2.6
		23%	30%	23%	17%	8%	0%	68%	52%
2	- Computers (Programming and usage of software packages)	9	10	17	11	6	0	3.1	1.8
		17%	19%	32%	21%	11%	0%	62%	36%
3	- Humanities and Social sciences	5	12	25	8	2	1	3.2	1.6
		9%	23%	47%	15%	4%	2%	64%	32%
4	- General Engineering	10	20	16	7	0	0	3.6	2.8
		19%	38%	30%	13%	0%	0%	72%	56%
5	- Engineering within major	15	18	13	6	1	0	3.8	3.1
		28%	34%	25%	11%	2%	0%	76%	62%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		11	13	19	5	3	2	3.5	2.4
		21%	25%	36%	9%	6%	4%	70%	48%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	15	12	14	10	1	1	3.6	2.6
		28%	23%	26%	19%	2%	2%	72%	52%
8	- Career planning	10	12	13	10	5	3	3.2	2.2
		19%	23%	25%	19%	9%	6%	64%	44%
D. Equity of treatment by:									
9	- Academic administrators	14	10	20	7	2	0	3.5	2.3
		26%	19%	38%	13%	4%	0%	70%	46%
10	- Faculty	12	9	21	7	4	0	3.3	2
		23%	17%	40%	13%	8%	0%	66%	40%
11	- Teaching assistants and engineers	11	14	22	5	1	0	3.5	2.4
		21%	26%	42%	9%	2%	0%	70%	48%
12	- Fellow students	9	13	18	7	5	1	3.3	2.1
		17%	25%	34%	13%	9%	2%	66%	42%
E. Quality of the facilities:									
13	- Classrooms	5	7	19	11	11	0	2.7	1.1
		9%	13%	36%	21%	21%	0%	54%	22%
14	- Science laboratories	4	8	10	17	14	0	2.5	1.1
		8%	15%	19%	32%	26%	0%	50%	22%
15	- Engineering Laboratories	3	9	6	15	20	0	2.2	1.1
		6%	17%	11%	28%	38%	0%	44%	22%
16	- Computing facilities	6	4	14	16	13	0	2.5	0.9
		11%	8%	26%	30%	25%	0%	50%	18%
17	- Libraries	9	9	14	13	7	1	3	1.7
		17%	17%	26%	25%	13%	2%	60%	34%

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	9	15	13	5	3	8	3.5	2.7	19	23	11
		17%	28%	25%	9%	6%	15%	70%	54%	36%	43%	21%
2	Training office	9	11	14	5	1	13	3.6	2.5	9	29	15
		17%	21%	26%	9%	2%	25%	72%	50%	17%	55%	28%
3	Libraries	5	22	14	6	1	5	3.5	2.8	12	27	14
		9%	42%	26%	11%	2%	9%	70%	56%	23%	51%	26%
4	Bookstores	7	12	17	7	4	6	3.2	2	18	23	12
		13%	23%	32%	13%	8%	11%	64%	40%	34%	43%	23%
B. Administrative Offices:												
5	Students affairs office in your department	13	12	13	4	2	9	3.7	2.8	16	26	11
		25%	23%	25%	8%	4%	17%	74%	56%	30%	49%	21%
6	Administrative offices in the college	9	15	15	4	1	9	3.6	2.7	16	23	14
		17%	28%	28%	8%	2%	17%	72%	54%	30%	43%	26%
C. Other Services:												
7	Health services	9	9	12	3	4	16	3.4	2.4	7	21	25
		17%	17%	23%	6%	8%	30%	68%	48%	13%	40%	47%
8	Food services	5	12	12	11	11	2	2.8	1.7	22	23	8
		9%	23%	23%	21%	21%	4%	56%	34%	42%	43%	15%
9	Parking	4	4	4	13	25	3	2	0.8	27	13	13
		8%	8%	8%	25%	47%	6%	40%	16%	51%	25%	25%
10	Recreation and athletics	4	7	7	5	13	17	2.6	1.5	10	18	25
		8%	13%	13%	9%	25%	32%	52%	30%	19%	34%	47%
11	Others	3	3	3	3	5	36	2.8	1.8	5	12	17
		6%	6%	6%	6%	9%	68%	56%	36%	9%	23%	32%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Be patient, think out of the box, modeling and designing and how to write a report

---

Main mechanical engineering skills such as creative and innovative thinking as well as problem solving techniques.

---

knowing some computer programmes, design steps and how to make your own design, a lot of informations about engineering.

I have learnt : Time management, Not to panic in stress, deal with stress, deal with problems in conductive ways, confidence.

---

social life skills. time managing.

Writing - problem solving

Woke with team

---

matlab

Perfecting student syndrome.

Presentations, Reports, Interpersonal skills, Time Management, Engineering Techniques formulas and way of thinking, all that and more i have accumulated over the years of being a student in this University

---

Programming, analysing, researching

Group work

Problem solving, Engineering thinking

---

i learened autocad, matlab, COMSOL multiphysics and various things in engineering from laws to ethics and i learned a lot of math which was extremely helpful and useful.

Engineering sense

Research skills Program simulation

Critical thinking, taking responsibility, implementing what I learned, nothing usually goes according to plan and that you have to have that in mind with multiple back up plans, how to deal with different students, Reviewed many of the subjects I took, programming and coding.

Problem Solving Teamwork Report writing Testing Finding Solutions Critical Thinking

---

Problem Solving Using computer programs Critical Thinking Applying my knowledge in real life Teamwork Report Writing

Autocad , Comsol

learned autocad -matlab -comsol

comunicating

ees,excell

problem solving, team work

Programme skills (Autocad, Comsol, Matlab etc...) Communicate effectively (written reports)

Mathematics and problem analysis

socializing and interacting - using computer software to apply engineering knowledge - Communicate effectively (written reports)

Analysing and solving problems, using AutoCad software, using MATLAB software, group work, presentation skills, writting reports and working under stress.

time mangement - strong amalytical mind - attention to detail - communicatin -

how to work and solve engineering problems.

COMSOL, Microsoft, Matlab, auto cad, EES

Analyzing problmes, programme skills

team work presentation skills how to do research how to write formal and informal report how to schedule time

Communicate effectively (written reports)

being social and helpful

Computer skills

Deagin and conduct experiment

Team work

do what i want to do

Problem Solving

Team work, tolerance , creativity

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Practical implement for what i learn
Unfortunately not much of robotics or arduino skills.
learning other languages, having the opportunities to see what we are learning in the real life, and having a training course in one of the companies.
I didn't had a chance to improve my communication skills, leadership skills, or English language.
how to apply the theories in real life. how to use some important software.
English language (Oral skills)
Speak fluently and express opinions
I think i've got what i needed and more.
I would prefer to have gotten a course about the software Matlab very early in my university career, the programme is widely used in the major courses and many students had to learn it from scratch in a very short time.
experiment works, efficient programming, efficient analysing through computer aided programs
Matlab
Practical experience, Laboratory work
Doing actual experiments with decent equipment, going to a clean library, having decent computers in the library and labs with working programms and especially all the programms we require in our courses.
Interaction between majors
Writing papers
I obtained the skills that I personally needed through different elective courses.
Public Speaking Programs (Solidworks) More languages
Programming Public Speaking
Matlab
experiments in labs

every thing else

matlab

Matlab coding

present

matlab auto cad

matlab autocad

Computer Aided Design Software skills

Communicate effectively (oral presentations)

Working in field

modern technology - practicale work

only theories; no real life problems

Communicate effectively (oral presentations)

Manefacturing

Workshop work

practical learning

new programming tools

Programming

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Much of practical implement

In much need of a better online course system website since the one we are currently using many times does not work specially on weekends and before exams.

give the student the opportunity to do his favorite skills as a part of his life, make the training course a manadtory course to get such benifit from it, and as a part of each courses, there should be a trip for one of the companies that it is related in its work to the subject of the course in case of making the student understand what he learn.

Make a facilities for students to enjoy/rest in campus. Focus more on English language (Presentation) to make students more confidence. Organize events which are helpful not only about food/things which are useless,

instead events to make students effective and let them compete with each others. More Parking lots for students. The library should have books online for students(old book at least).

teaching students how to use some important software before give them a project that needs the usage of these software ! improve and renew the laboratories teach students how to apply all engineering theories on real life.

More oral presentations and communication training are needed

Increase talking by presentations in courses

Kuwait Uni. is great, students are great and they know how to choose and plan their courses, Mechanical Engineering doctors are the best, Yet i think that there has to be a new level of effort in guiding the students how to study the right way, the classical way the way that we all know is right. How to get an A is what the students need, they know how to choose their courses.

I would prefer if the software subjects were more common as they will be used way more than old techniques when solving engineering problems nowadays.

Lot of things ...!

Get the computer programms we need as students in our average courses, such as EES and COMSOL. Also improve the laborataries.

Increase diversity

more classes for teaching how to write a research papers

Parking and student comfort are the two major problems in Kuwait University.

Better teaching techniques Better equipment

More Parking Near the collage.

Senior project class should be within 2 courses

change some of the doctors

make sure the students are treated fairly.

parking

parking

Buildings need maintenance - increase parking capacity - developing the registration process

Some T.A. are not good enough and many of them does not understand the course.

improve the laboratories and the mechanical workshop. add more credits to lab and workshop.

SOLID WORK

No commwnt

communication ways with students need to be improved

practical learning should be improved

try to fix parking pllllllllllz

Committee to supervise instructors

Petroleum Engineering Program
Exit Survey Results

For the Academic year 2017-2018

October 2018

PETROLEUM ENGINEERING MISSION & VISION

Mission

To provide a modern petroleum engineering education with proper balance between theory and practice, and to graduate petroleum engineers prepared for life-long learning and capable of being productive contributors for the oil and gas industry

Vision

To be a world-class provider of education and research for the oil and gas industry, to play a leadership role in providing new technologies in order to increase the petroleum reserves of Kuwait.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The Petroleum Engineering Department at Kuwait University is dedicated to graduating Petroleum Engineers who will:

1. Engage in productive careers in petroleum engineering in public or private sectors, or successfully pursue graduate studies and careers in academia or research centers.
2. Advance in responsibility and leadership in their careers, and participate in continuous professional development to meet the challenges of rapidly emerging technology.
3. Contribute to the welfare of the society and the environment and the development of the profession through responsible practice of petroleum engineering and participation in professional activities and organizations.

Student Outcomes

Petroleum Engineering Student Outcomes

a. An ability to apply knowledge of mathematics, science, and engineering
b. An ability to design and conduct experiments, as well as to analyze and interpret data
c. An ability to design a system, component, or process to meet desired needs
d. An ability to function on multi-disciplinary teams
e. An ability to identify, formulate, and solve engineering problems
f. An understanding of professional and ethical responsibility
g. An ability to communicate effectively
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context
i. A recognition of the need for, and an ability to engage in life-long learning
j. A knowledge of contemporary issues
k. An ability to use techniques, skills, and modern engineering tools necessary for engineering practice

ABET (2017-2018) Definitions

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Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Petroleum Engineering**

*** Number of Students participated in the survey:**

99	Male	21	21%
	Female	71	72%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	65	66%
Intend to work in the private sector.	43	43%
Intend to go to graduate school.	24	24%
Intend to start my own business	13	13%
Intend to do other things	7	7%
I intend to get a master's degree		
The koc		

* **Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcomes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and associate figure according to the new student outcomes as outlined previously in the college section.

* **Table 3** shows students' feedback for the second group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 4** shows students' feedback for the third and fourth groups about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcomes acquired at Kuwait University

#	Outcome	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	44	30	16	0	1	8	4.3	4.1
		44%	30%	16%	0%	1%	8%	86%	82%
2	Design and conduct experiments, as well as to analyze and interpret data.	30	39	20	2	0	8	4.1	3.8
		30%	39%	20%	2%	0%	8%	82%	76%
3	Design a system, component, or process to meet desired needs.	23	30	32	6	0	8	3.8	2.9
		23%	30%	32%	6%	0%	8%	76%	58%
4	Function effectively in teams.	39	32	15	2	2	9	4.2	3.9
		39%	32%	15%	2%	2%	9%	84%	78%
5	Identify, formulate, and solve engineering problems.	43	29	18	0	0	9	4.3	4
		43%	29%	18%	0%	0%	9%	86%	80%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	43	29	15	4	0	8	4.2	4
		43%	29%	15%	4%	0%	8%	84%	80%
7	Communicate effectively (written reports).	37	38	15	1	0	8	4.2	4.1
		37%	38%	15%	1%	0%	8%	84%	82%
8	Communicate effectively (oral presentations).	42	30	16	3	0	8	4.2	4
		42%	30%	16%	3%	0%	8%	84%	80%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	38	30	16	4	2	9	4.1	3.8
		38%	30%	16%	4%	2%	9%	82%	76%
10	Be aware of the need for, and improved ability to engage in life-long learning (seeking further education, self-learning, membership in professional societies).	34	32	20	4	0	9	4.1	3.7
		34%	32%	20%	4%	0%	9%	82%	74%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	33	32	22	3	1	8	4	3.6
		33%	32%	22%	3%	1%	8%	80%	72%
12	Ability to use computing technology in communications.	27	37	23	3	0	9	4	3.6
		27%	37%	23%	3%	0%	9%	80%	72%
13	Ability to use computing technology in engineering analysis/design.	31	32	23	5	0	8	4	3.5
		31%	32%	23%	5%	0%	8%	80%	70%
14	Ability to use state of the art techniques, and tools in engineering practice.	26	34	21	8	1	9	3.8	3.3
		26%	34%	21%	8%	1%	9%	76%	66%
15	Apply the knowledge of probability and statistics.	24	30	25	9	2	9	3.7	3
		24%	30%	25%	9%	2%	9%	74%	60%

Table2 Assessment of the outcomes (1-7) acquired at Kuwait University

#	Outcome	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.1 82%	**3.7** **73%**
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.8 77%	**3.0** **60%**
3	an ability to communicate effectively with a range of audiences	4.2 84%	4.1 81%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	4.0 81%	**3.6** **73%**
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.2 84%	3.9 78%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 77%	**3.1** **61%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.1 82%	3.7 74%

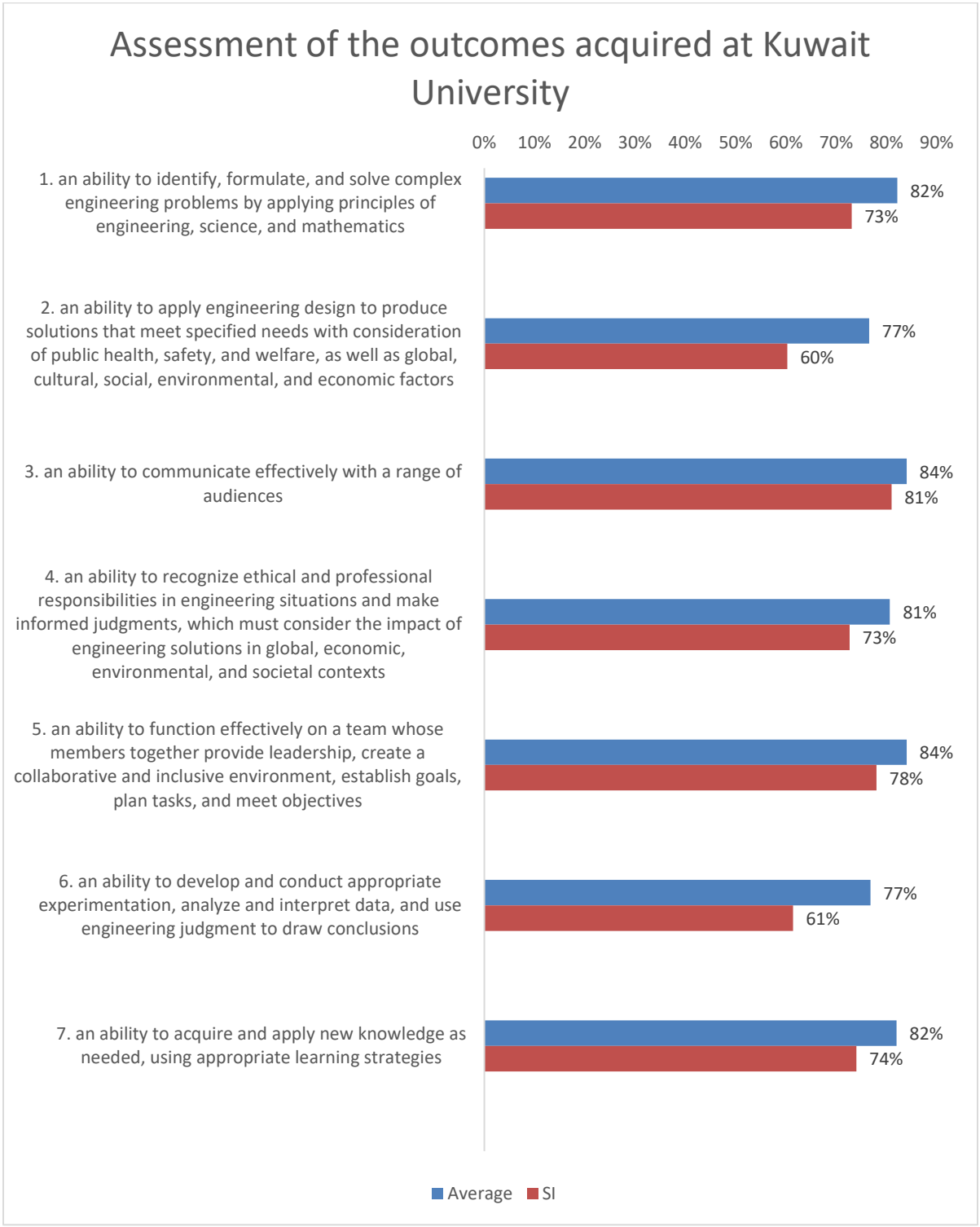

Assessment of the outcomes acquired at Kuwait University
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
82%
73%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
77%
60%
3. an ability to communicate effectively with a range of audiences
84%
81%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
81%
73%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
84%
78%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
77%
61%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
82%
74%
Average
SI

Table 3 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	25	23	27	9	5	10	3.6	2.7
		25%	23%	27%	9%	5%	10%	72%	54%
2	- Computers (Programming and usage of software packages)	13	21	40	10	5	10	3.3	1.9
		13%	21%	40%	10%	5%	10%	66%	38%
3	- Humanities and Social sciences	10	33	33	9	2	12	3.5	2.5
		10%	33%	33%	9%	2%	12%	70%	50%
4	- General Engineering	24	34	27	5	0	9	3.9	3.2
		24%	34%	27%	5%	0%	9%	78%	64%
5	- Engineering within major	31	34	25	1	0	8	4	3.6
		31%	34%	25%	1%	0%	8%	80%	72%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		21	31	31	8	0	8	3.7	2.9
		21%	31%	31%	8%	0%	8%	74%	58%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	20	33	29	6	4	7	3.6	2.9
		20%	33%	29%	6%	4%	7%	72%	58%
8	- Career planning	17	32	29	8	5	8	3.5	2.7
		17%	32%	29%	8%	5%	8%	70%	54%
D. Equity of treatment by:									
9	- Academic administrators	22	26	37	5	2	7	3.7	2.6
		22%	26%	37%	5%	2%	7%	74%	52%
10	- Faculty	24	24	36	6	2	7	3.7	2.6
		24%	24%	36%	6%	2%	7%	74%	52%
11	- Teaching assistants and engineers	25	23	38	4	2	7	3.7	2.6
		25%	23%	38%	4%	2%	7%	74%	52%
12	- Fellow students	21	29	33	7	1	8	3.7	2.7
		21%	29%	33%	7%	1%	8%	74%	54%
E. Quality of the facilities:									
13	- Classrooms	10	10	32	15	23	9	2.7	1.1
		10%	10%	32%	15%	23%	9%	54%	22%
14	- Science laboratories	10	16	29	22	14	8	2.8	1.4
		10%	16%	29%	22%	14%	8%	56%	28%
15	- Engineering Laboratories	13	15	32	20	11	8	3	1.5
		13%	15%	32%	20%	11%	8%	60%	30%
16	- Computing facilities	12	18	30	19	13	7	3	1.6
		12%	18%	30%	19%	13%	7%	60%	32%
17	- Libraries	20	23	31	14	4	7	3.4	2.3
		20%	23%	31%	14%	4%	7%	68%	46%

Table 4 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	19	30	21	12	6	11	3.5	2.8	32	43	17
		19%	30%	21%	12%	6%	11%	70%	56%	32%	43%	17%
2	Training office	19	38	17	6	4	15	3.7	3.4	30	49	13
		19%	38%	17%	6%	4%	15%	74%	68%	30%	49%	13%
3	Libraries	21	38	20	5	4	11	3.8	3.4	34	48	10
		21%	38%	20%	5%	4%	11%	76%	68%	34%	48%	10%
4	Bookstores	20	36	19	7	4	13	3.7	3.3	23	54	15
		20%	36%	19%	7%	4%	13%	74%	66%	23%	55%	15%
B. Administrative Offices:												
5	Student affairs office in your department	15	34	24	8	3	15	3.6	2.9	23	56	13
		15%	34%	24%	8%	3%	15%	72%	58%	23%	57%	13%
6	Administrative offices in the college	20	29	25	7	3	15	3.7	2.9	25	53	14
		20%	29%	25%	7%	3%	15%	74%	58%	25%	54%	14%
C. Other Services:												
7	Health services	16	32	14	15	8	14	3.4	2.8	25	48	19
		16%	32%	14%	15%	8%	14%	68%	56%	25%	48%	19%
8	Food services	15	20	21	13	21	9	2.9	1.9	36	39	17
		15%	20%	21%	13%	21%	9%	58%	38%	36%	39%	17%
9	Parking	8	9	11	17	45	9	2.1	0.9	33	32	27
		8%	9%	11%	17%	45%	9%	42%	18%	33%	32%	27%
10	Recreation and athletics	10	23	8	14	26	18	2.7	2	19	45	28
		10%	23%	8%	14%	26%	18%	54%	40%	19%	45%	28%
11	Others	10	12	8	10	7	52	3.2	2.3	16	34	19
		10%	12%	8%	10%	7%	53%	64%	46%	16%	34%	19%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Some important skills i have learned are team work and delegation, public speaking, multi - tasking, self - management, decision making, research and analysis, ability to work under pressure, and finally writing.

I have become self patient, turned out to love researches.

---

nice program

Patience

Critical thinking

I learned so much about the oil industry and all the important information about the oil in details.

---

writing reports, communicate with students and team work, engineering thinking

---

Pipsim C++ Eclipse

---

1. Time Management 2. Communication 3. Organisation

---

programming- engineering design

Engineering drawing and programming

Reading and presentation skills

---

precision

A lot of things

SPEECH

---

knowledge of mathematics, physics and engineering.

---

speech

---

i become harder and more flexible mathmatics

Patience and endurance

---

ability of self learning, speaking English, learning about programs software.

Design a reservoir system using simulation programs and how to analyze data.

deal with stress
auto cad, pipesim, Microsoft word ,Microsoft excel, Microsoft power point and eclipse.
programming , designing
taking care of us.
1-Oral presentations 2-Collaboration and team work 3-Critical thinking and problem solving
Professionalism, solving any problem
team working time management computer skills (pipesim- opsim)
Critical Thinking Team work Time Management
design
How to solve problems, think outside the box.
Self dependency, time saving, ability to except any characters of people, group work
communicate effectively
teamwork multi-tasking public speaking
Public speaking
communication - creativity - computer modeling
Teamwork skills - Presentation skills - Computer skills
working in group mathematical and engineering knowledge
solving engineering problems being able to do presentations
I learned self-study, social skills, critical thinking, teamwork, teamleadership, mathematics engineering knowledge, designing, and data interpretation, among many other skills.
1-usage of many softwares like: Microsoft (Excel/Word/Publisher/Power point) , Pipesim and AutoCad. 2-How to present any subject in public or in front of the audience 3- How write reports, summaries and essays.
oral presentations/Smart thinking/Smart choosing the idea and team group.
presentations skills
I learned a little bit of everything and how to operate in this country
work as a team

Microsoft office program engineering software group work

be able to become a good team leader , present well in presentations , able to manage the limited time , and good at data collection and data analysis.

CMG-ECLIPSE-AUTOCAD-PIPESIM

Self-confidence .. experience

solve problems

Good presentation and research skills

Writing reports and presenting oral presentation

Self-Motivation, Hard Work, Problem Analysis and Interpretation, STEM skills.

Writing skills Presentation skills

C++ / PIPESIM / Excel / Eclipse

presentation skills , Communication with others , engineering skills

good knowledge

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Some very important or useful skills that i did not get the chance to learn very well are enhanced computer skills on different types of computer programs and getting the chance to learn a different language as a beginner (As an elective).

Non.

group work

communication skills

Programming

I didn't get the chance to enter the oil field in the Kuwait oil company

more lap experiments, computer programming

Nothing else

group work

well control

Tring an real expirement to a real data to prove what we studing.

Huge

POETRY

i didn't enter the field in training course

No thing

communication skills, parking

How to plan and design any building

impove the english

VPA

field trips related to each course

solving problems ,dealing with studying stresses and presentation skills.

1- Practical work 2- Lack of visual learning 3- Computer skills

Public Speaking Field Training

Presentation skills

how to give presentations

no skills did not to get

Dialogue

using Excel program (I learned by my self),

Communication, self confidence

Know how to deal with people and ther personalty because it is very hard to know that skill with your once. Copy center is very very bad and every day is busy.

No opinion

presentation skills

Many instructors didnt prepare me well to question any concepts that they introduced, as they would get displeased when I questioned many of the introduced concept.

1-practical skills more than the theoretical skills 2-programming

I can not remember now, sorry.

design skills and creativity

Experimental work and programming

speak English fluently

Nothing in mind

Attention to details, leadership.

OpSim

Research skills

more of training course should be

good

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Some suggestions to improve the academic programs at Kuwait University is to understand the sources of satisfaction and dissatisfaction and use active learning in classes.

Kuwait University is the best, but education should be taken seriously with some instructors who give fake grades and some may not teach as proper as excepted. They ruin up a lot I swear.

become faster

Better instructors and faculty members

More programming projects

Update the devices and the class rooms

I do not have any right now, and I really very appreciate that I will be a senior from Kuwait university

strength the student academic experience. Ensure faculty accountability in creating and maintaining an academically challenging environment, consistently high-quality course offerings and teaching excellence. Adopt revised undergraduate university learning goals and outcomes to reflect national best practice. Strengthen graduate and professional programs through a focus on assessment of program objectives and student outcomes. Enhance and expand learning support services. Leverage flexibility in library services and delivery modes to meet changing student needs in information literacy. Improve the effectiveness of academic and career advising. Expand and strengthen programs that focus on critical student transitions, including the

first year for freshmen and transfer students, beginning or reentering college for adult students and entrance to major. Increase university retention and graduation rates while addressing gaps in degree completion across racial and ethnic groups. Strengthen the connections between curricular and co-curricular programs. Expand support for high-quality, easy-to-navigate student services, including those that address student wellness and mental health, and special support services and accommodations.

---

develop writing skills

Improve parking and solving the problem of crowded in gate 1 exit . Improve the quality and cleanly of the chooen restaurant. Let student choose the sectionthey joined by them self without force them to other BAD section (bad time or to much imposible Dr's) Improve the quality of computers and provids all the needed programs in all computers Improve labs and who working in labs. Thank you

---

Close the PE department

---

more parking and more sections for the Registrar system

---

communication skills

---

update the classes and lab

Improve class

Need more seats in the petroleum department.

---

new academic technique

No thing

1- Visual and practical learning 2- Improve computer skills 3-Engineering ethics subject

---

Improving class rooms, parking, labs and cafeteria

---

presentation tutorials

More Fun activities and facility members evaluation should be taken seriously

---

Sing the course subject need to be better

---

more field work

---

improve registration process

More field work

I don't have any comment.

More parking would be great.

---

learn more about course by get more examples and explain

There should be more supervision on the instructors since many of them bend the rules and give unfair grades to students with connections to them. It results in a discouraging atmosphere academically for the students. Instructors should also be taught to value the questioning of students rather than get displeased when a student questions a lot.

More presentations and projectss to prepare the student for the practical work/job

Need a professional doctor for economic and environmental impact.

you should involve more design courses, more courses that depend on working to understand not saving and repeating.

provide electronic board instead of normal board

choose the faculty carefully and redesign the class rooms with bright colors to become more joyful

No thing

improve the atmosphere

Build some proper labs.

1. Prepare classes for leadership skills. 2. Take the equity between students into consideration. 3. Avoid bias and injustice. 4. Encourage students by giving bonus grades for those working hard and answer in-class questions.

More training courses - more tutorials

more workshops and more training course is necessary

improve theroy

EXIT SURVEY RESULTS

Fall Semester 2018-2019

February 2019

Introduction:

This report presents the College of Engineering and Petroleum Exit Survey Results for the Fall Semester of the academic year 2018-2019. The survey was prepared, conducted and analyzed by the Office of Academic Assessment (OAA).

The exit survey form was provided to students online. Graduating students presenting their capstone projects during the engineering design day must provide proof of completing the survey to the Engineering Training and of Alumni Center (ETAC).

Survey Statistics:

The exit survey form contains five parts covering different aspects that the College of Engineering and Petroleum consider important for students to assess. The first part is about the assessment of engineering student skills where the first 15 questions are common among all departments, and the rest are customized by each program. The second part is about the assessment of the importance of educational objectives to the careers of graduating students. The third part is about the assessment of the learning environment. The fourth part covers the assessment of support services, and the fifth part is a general assessment that includes open ended questions.

A total of **329** students participated in the exit survey during the academic year the Fall Semester of 2018-2019. Table 1 shows the number of students participated in the survey according to program and gender.

Table 2 Exit survey participation breakdown

Program	Total Responses	Gender	Response	Percentage
CHEMICAL	58	Male	15	26%
		Female	43	74%
CIVIL	71	Male	10	14%
		Female	58	82%
COMPUTER	28	Male	0	0%
		Female	28	100%
ELECTRICAL	84	Male	18	21%
		Female	66	79%
IMS	24	Male	0	0%
		Female	24	100%
MECHANICAL	44	Male	6	14%
		Female	36	82%
PETROLEUM	20	Male	0	0%
		Female	20	100%
TOTAL	329	Male	49	15%
		Female	275	84%

Survey Results:

Table 2 shows students' intentions for their future plans. Most of the students (75%) expect to work for the government, 58% for the private sector, 29% of the students are planning or at least thinking of joining a graduate program, and 29% start their own business.

Table 3 shows students' feedback for the first group of questions in the exit survey, which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average rating and the satisfaction index (SI) out of 5 and as percentage for each item which is the percentage of the students who evaluated themselves as well prepared and very well prepared. An SI value lower than 50 % may be considered to indicate dissatisfaction.

Table 2 Students Future Plans

Plans	N	%
Intend to work in the government sector.	249	75%
Intend to work in the private sector.	193	58%
Intend to go to graduate school.	96	29%
Intend to start my own business	97	29%
Intend to do other things	25	7%
Continue my study		
Freelancing		
continue studying		
oil sector		
to work on saving the environment		
pursue masters degree		
Volunteering / part job		
continue my studies my master's degree		

Table 3 Assessment of the outcome attributes acquired at Kuwait University – Engineering programs

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	107	125	81	13	0	8	4	3.6
		32%	37%	24%	4%	0%	2%	80%	72%
2	Design and conduct experiments, as well as to analyze and interpret data.	90	128	90	12	7	7	3.9	3.3
		27%	38%	27%	4%	2%	2%	78%	66%
3	Design a system, component, or process to meet desired needs.	86	106	112	19	4	7	3.8	2.9
		26%	32%	34%	6%	1%	2%	76%	58%
4	Function effectively in teams.	130	103	74	15	4	8	4	3.6
		39%	31%	22%	4%	1%	2%	80%	72%
5	Identify, formulate, and solve engineering problems.	98	138	80	9	2	7	4	3.6
		29%	41%	24%	3%	1%	2%	80%	72%
6	Understand professional and ethical responsibilities. (e.g. safety, professional ethics, code of conduct).	122	104	74	16	10	8	4	3.5
		37%	31%	22%	5%	3%	2%	80%	70%
7	Communicate effectively (written reports).	107	105	90	16	5	11	3.9	3.3
		32%	31%	27%	5%	1%	3%	78%	66%
8	Communicate effectively (oral presentations).	101	99	88	28	10	8	3.8	3.1
		30%	30%	26%	8%	3%	2%	76%	62%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	106	107	95	15	3	8	3.9	3.3
		32%	32%	28%	4%	1%	2%	78%	66%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	108	98	101	15	3	9	3.9	3.2
		32%	29%	30%	4%	1%	3%	78%	64%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	85	96	99	37	6	11	3.7	2.8
		25%	29%	30%	11%	2%	3%	74%	56%
12	Ability to use computing technology in communications.	117	101	88	14	6	8	3.9	3.3
		35%	30%	26%	4%	2%	2%	78%	66%
13	Ability to use computing technology in engineering analysis/design.	101	96	111	15	3	8	3.8	3
		30%	29%	33%	4%	1%	2%	76%	60%
14	Ability to use state of the art techniques, and tools in engineering practice.	88	89	117	23	4	13	3.7	2.8
		26%	27%	35%	7%	1%	4%	74%	56%
15	Apply the knowledge of probability and statistics.	74	94	108	39	9	10	3.6	2.6
		22%	28%	32%	12%	3%	3%	72%	52%

Transition to the New Student Outcomes (1-7)

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to only seven student outcomes (1-7). A mapping framework is developed to properly implement these changes during the transition period.

Both the previous 11 (a-k) and new 7 student outcomes are shown below. The mapping is then presented:

Previous Student Outcomes (a-k)

12. an ability to apply knowledge of mathematics, science, and engineering
13. an ability to design and conduct experiments, as well as to analyze and interpret data
14. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
15. an ability to function on multidisciplinary teams
16. an ability to identify, formulate, and solve engineering problems
17. an understanding of professional and ethical responsibility
18. an ability to communicate effectively
19. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
20. a recognition of the need for, and an ability to engage in life-long learning
21. a knowledge of contemporary issues
22. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The New Student Outcomes (1-7) (Implemented, Fall 2018)

15. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
16. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
17. an ability to communicate effectively with a range of audiences
18. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
19. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
20. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
21. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The mapping framework of student outcomes SOs is given below:

			2019-2020 cycle						
			1	2	3	4	5	6	7
Previous Student Outcomes	1	*a*	✓						
	2	*b*						✓	
	3	*c*		✓					
	4	*d*					✓		
	5	*e*	✓						
	6	*f*				✓			
	7	*g*			✓				
	8	*h*				✓			
	9	*i*							✓
	10	*j*				✓			
	11	*k*	(✓)	(✓)				(✓)	

$$SO_1 = 0.8 * \left(\frac{SO_1+SO_5}{2}\right) + 0.2 * (SO_{11})$$
$$SO_2 = 0.8 * (SO_3) + 0.2 * (SO_{11})$$
$$SO_3 = SO_7$$
$$SO_4 = \left(\frac{SO_6+SO_8+SO_{10}}{3}\right)$$
$$SO_5 = SO_4$$
$$SO_6 = 0.7 * (SO_2) + 0.3 * (SO_{11})$$
$$SO_7 = SO_9$$

Calculation of averages for the new outcomes based on the previous outcomes

As mentioned before, additional outcome attributes were articulated by different programs to further examine specific aspects of students learning. Different departments typically use 15-17 SOs for that purpose. Therefore, another mapping framework is used to map the common 15 outcomes to the 11 SOs.

			Previous cycle										
			1	2	3	4	5	6	7	8	9	10	11
Student Outcomes Elements	1	*a*	✓										
	2	*b*		✓									
	3	*c*			✓								
	4	*d*				✓							
	5	*e*					✓						
	6	*f*						✓					
	7	*g*							✓				
	8	*h*							✓				
	9	*i*								✓			
	10	*j*									✓		
	11	*k*										✓	
	12	*l*											✓
	13	*m*											✓
	14	*n*											✓
	15	*o*	✓										

$$SO_1 = \left(\frac{SO_1+SO_{15}}{2}\right)$$
$$SO_2 = SO_2$$
$$SO_3 = SO_3$$
$$SO_4 = SO_4$$
$$SO_5 = SO_5$$
$$SO_6 = SO_6$$
$$SO_7 = \left(\frac{SO_7+SO_8}{2}\right)$$
$$SO_8 = SO_9$$
$$SO_9 = SO_{10}$$
$$SO_{10} = SO_{11}$$
$$SO_{11} = \left(\frac{SO_{12}+SO_{13}+SO_{14}}{3}\right)$$

Calculation of averages for the 11 outcomes based on the measurements of the 15 outcome elements

Following the mapping procedure outlined above, the statistics of Table 3 are shown in Table 4 according to the new student outcomes (1-7); acquired at Kuwait University – Engineering programs

Figure 1 shows the average rating and satisfaction index for the new student outcomes. As it can be seen, the students are satisfied by the outcomes acquired at the college and university.

Table 5 shows students' feedback for the group of questions about how important the educational objectives are to their careers. Figure 2 shows the average rating and satisfaction index for this group of questions.

Table 6 shows students' feedback for the group of questions about their level of satisfaction for the learning Environment at Kuwait University. Figure 3 shows the average rating and satisfaction index for this group of questions.

Notice that while the averages are at satisfactory levels the SIs are low, which indicates that students are generally not very satisfied with the learning Environment at Kuwait University. Looking at the results, we can see that the satisfaction index is low (mostly below 50%) for the following:

- Quality of instruction and support for learning provided by the faculty members in: science, and computers.
- Quality of advice by the staff with respect to: career planning
- Equity of treatment by: Faculty.
- Quality of the facilities: classroom, science laboratories, engineering laboratories, computing facilities, and libraries.

Table 7 shows students' feedback for the group questions about the students' assessment of the Support Services at Kuwait University. Figure 4 shows the average rating and satisfaction index for this group of questions. The table also shows the amount of interaction they had with each item. As it can be seen the students are generally not satisfied with:

- Academic Services: Admissions/Registrar.
- Other Services: food services, parking, recreation and athletics.

Tables 8-11 show the differences among departments for each of the four groups of questions mentioned above. Figures 5-8 show the average rating for each of the four groups of questions.

These results are somehow justified by the impact of growing number of students for the same facilities. In addition, currently the College is in transition to move to the new Sabah Al-Salem University City, and maintenance is at bare minimum.

Table 4 Assessment of the student outcomes (according to the 2019-2020 cycle ABET updates) acquired at Kuwait University – Engineering programs

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 78%	3.3 66%
2		3.8	2.9

	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	76%	59%
3	an ability to communicate effectively with a range of audiences	3.9 77%	3 63%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 77%	3.2 64%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4 80%	3.5 70%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 76%	2.9 59%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.2 64%

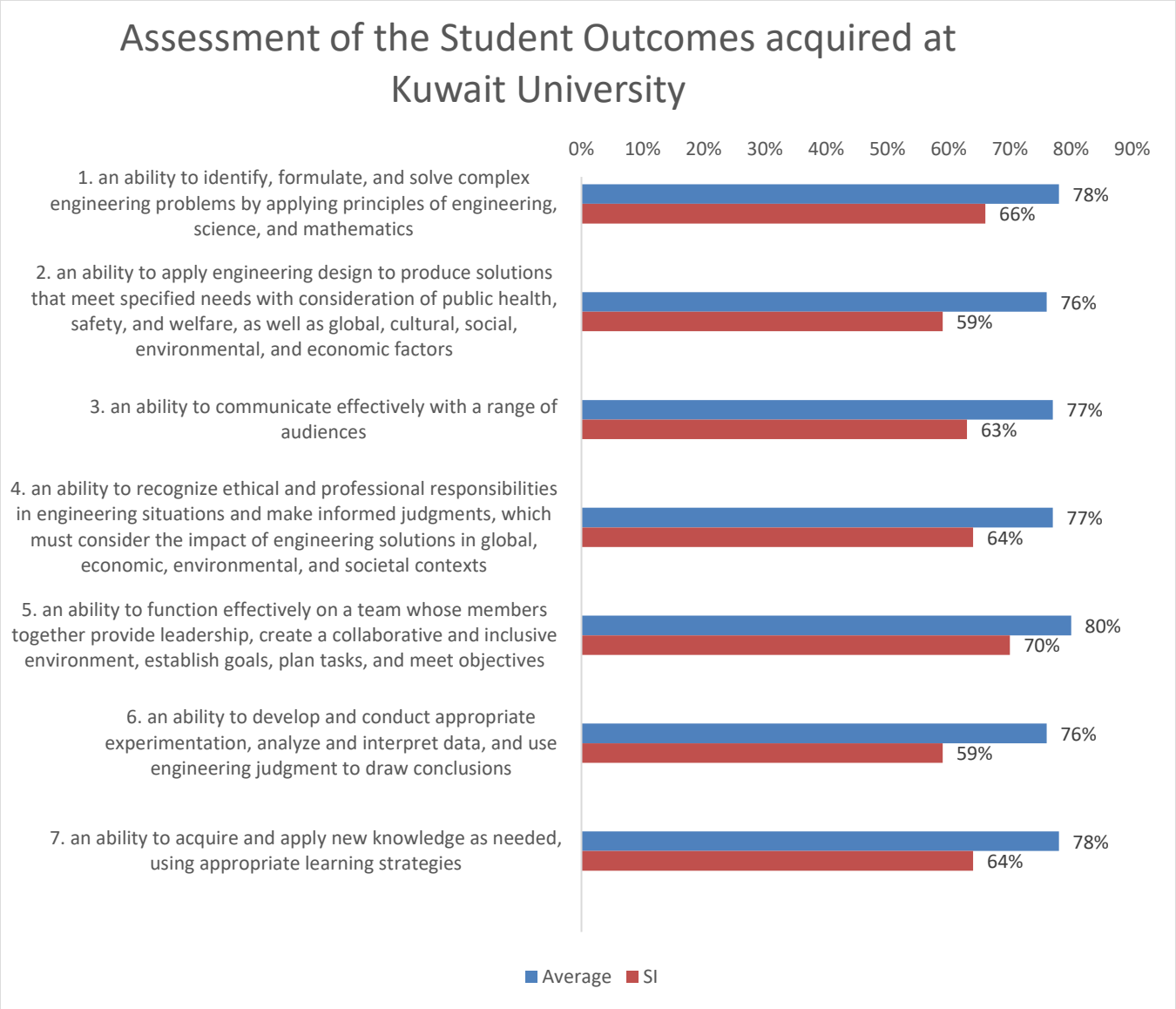


Figure 1 Assessment of the student outcomes acquired at Kuwait University

Table 5 Assessment of the relevance of Educational Objectives – Engineering programs

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	132	93	69	7	1	32	4.2	3.7
		40%	28%	21%	2%	0%	10%	84%	74%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	106	105	78	11	0	34	4	3.5
		32%	31%	23%	3%	0%	10%	80%	70%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	100	94	78	24	4	34	3.9	3.2
		30%	28%	23%	7%	1%	10%	78%	64%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate	86	110	80	19	6	33	3.8	3.3
		26%	33%	24%	6%	2%	10%	76%	66%

	courses, graduate degree, training, certificates and professional certification)								
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	82	96	94	21	6	35	3.8	3
		25%	29%	28%	6%	2%	10%	76%	60%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	99	87	85	21	4	38	3.9	3.1
		30%	26%	25%	6%	1%	11%	78%	62%

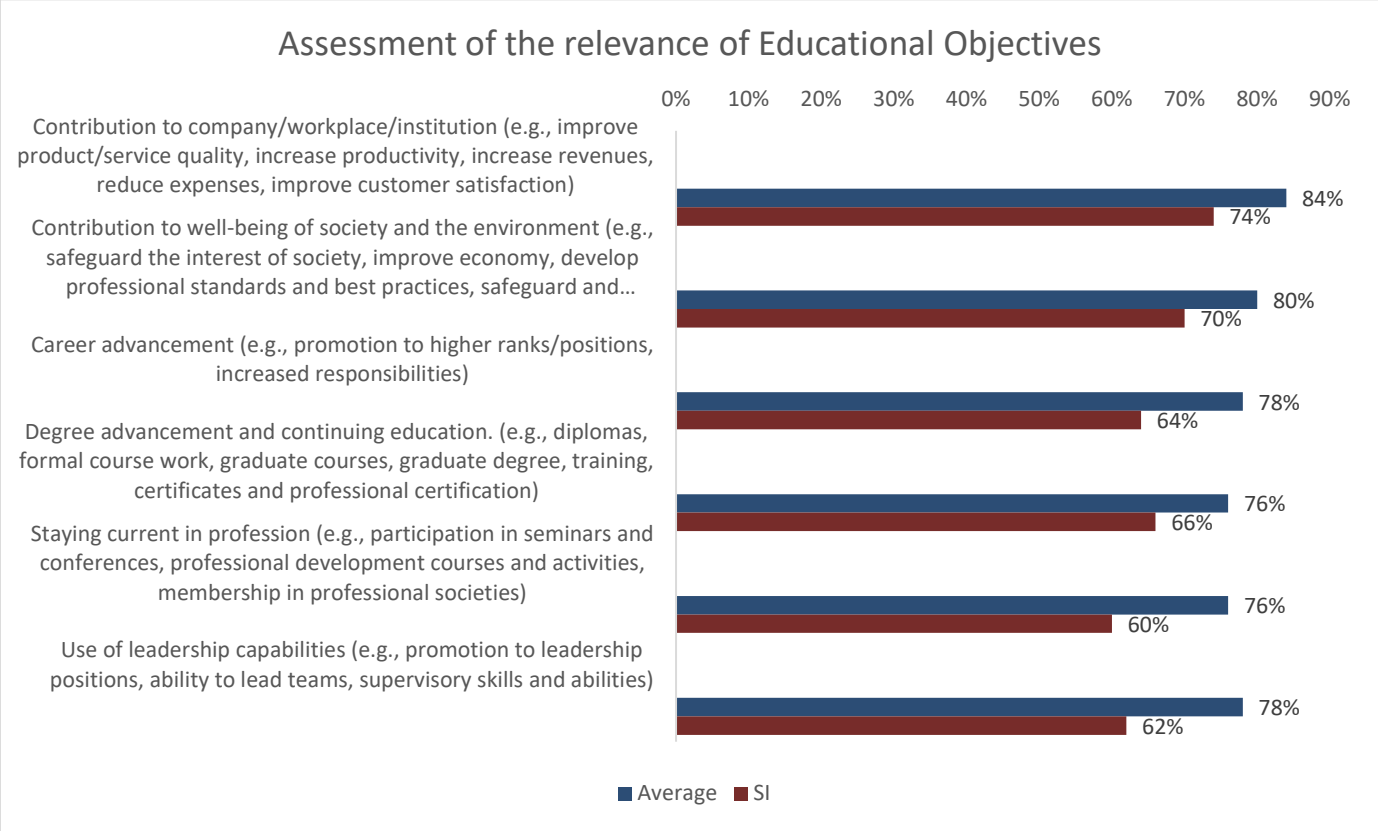


Figure 2 Assessment of the relevance of Educational Objectives at Kuwait University

Table 6 Assessment of the learning environment at Kuwait University - Engineering programs

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	87	64	105	45	26	7	3.4	2.3
		26%	19%	31%	13%	8%	2%	68%	46%
2	- Computers (Programming and usage of software packages)	69	86	99	42	23	15	3.4	2.4
		21%	26%	30%	13%	7%	4%	68%	48%
3	- Humanities and Social sciences	74	82	108	36	14	20	3.5	2.5
		22%	25%	32%	11%	4%	6%	70%	50%
4	- General Engineering	69	109	115	25	9	7	3.6	2.7

		21%	33%	34%	7%	3%	2%	72%	**54%**
5	- Engineering within major	112	107	80	17	7	11	3.9	**3.4**
		34%	32%	24%	5%	2%	3%	78%	**68%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		86	85	102	38	11	12	3.6	**2.7**
		26%	25%	31%	11%	3%	4%	72%	**54%**
C. Quality of advice by the staff with respect to:									
7	- Academic planning	77	90	92	41	16	18	3.5	**2.6**
		23%	27%	28%	12%	5%	5%	70%	**52%**
8	- Career planning	65	82	103	50	19	15	3.4	**2.3**
		19%	25%	31%	15%	6%	4%	68%	**46%**
D. Equity of treatment by:									
9	- Academic administrators	77	86	91	44	17	19	3.5	**2.6**
		23%	26%	27%	13%	5%	6%	70%	**52%**
10	- Faculty	68	85	111	40	17	13	3.5	**2.4**
		20%	25%	33%	12%	5%	4%	70%	**48%**
11	- Teaching assistants and engineers	86	98	94	28	17	11	3.6	**2.8**
		26%	29%	28%	8%	5%	3%	72%	**56%**
12	- Fellow students	82	87	96	42	11	16	3.6	**2.7**
		25%	26%	29%	13%	3%	5%	72%	**54%**
E. Quality of the facilities:									
13	- Classrooms	49	57	86	76	56	10	2.9	**1.6**
		15%	17%	26%	23%	17%	3%	58%	**32%**
14	- Science laboratories	49	57	87	77	52	12	2.9	**1.6**
		15%	17%	26%	23%	16%	4%	58%	**32%**
15	- Engineering Laboratories	48	56	109	64	47	10	3	**1.6**
		14%	17%	33%	19%	14%	3%	60%	**32%**
16	- Computing facilities	47	70	93	65	45	14	3	**1.8**
		14%	21%	28%	19%	13%	4%	60%	**36%**
17	- Libraries	71	71	90	60	30	12	3.3	**2.2**
		21%	21%	27%	18%	9%	4%	66%	**44%**

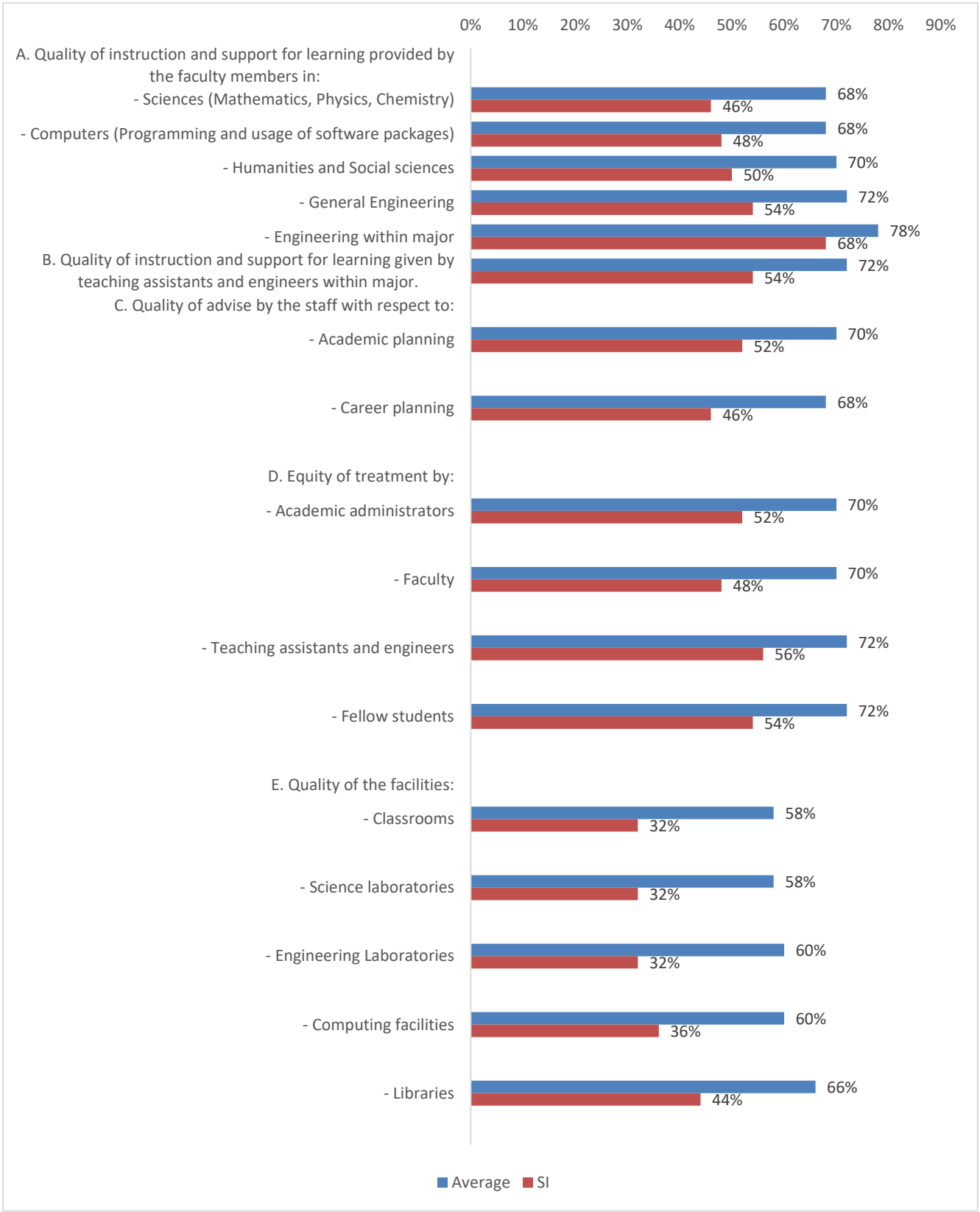


Figure 3 Assessment of the learning Environment at Kuwait University

Table 7 Assessment of the Support Services at Kuwait University – Engineering programs

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	68	89	81	50	34	12	3.3	2.4	109	180	40
		20%	27%	24%	15%	10%	4%	66%	48%	33%	54%	12%
2	Training office	74	107	70	38	7	38	3.7	3.1	78	194	57
		22%	32%	21%	11%	2%	11%	74%	62%	23%	58%	17%
3	Libraries	75	110	80	33	13	23	3.6	3	115	155	59
		22%	33%	24%	10%	4%	7%	72%	60%	34%	46%	18%
4	Bookstores	60	104	81	37	18	34	3.5	2.7	98	170	61
		18%	31%	24%	11%	5%	10%	70%	54%	29%	51%	18%
B. Administrative Offices:												
5	Students affairs office in your department	73	119	65	37	12	28	3.7	3.1	97	168	64
		22%	36%	19%	11%	4%	8%	74%	62%	29%	50%	19%
6	Administrative offices in the college	62	122	73	31	14	32	3.6	3	94	174	61
		19%	37%	22%	9%	4%	10%	72%	60%	28%	52%	18%
C. Other Services:												
7	Health services	63	88	60	41	30	52	3.4	2.7	88	134	107
		19%	26%	18%	12%	9%	16%	68%	54%	26%	40%	32%
8	Food services	54	80	81	54	48	17	3.1	2.1	146	147	36
		16%	24%	24%	16%	14%	5%	62%	42%	44%	44%	11%
9	Parking	27	33	23	49	168	34	2	1	140	118	71
		8%	10%	7%	15%	50%	10%	40%	20%	42%	35%	21%
10	Recreation and athletics	41	50	37	56	73	77	2.7	1.8	83	119	127
		12%	15%	11%	17%	22%	23%	54%	36%	25%	36%	38%
11	Others	34	34	34	22	26	184	3.2	2.3	66	101	81
		10%	10%	10%	7%	8%	55%	64%	46%	20%	30%	24%

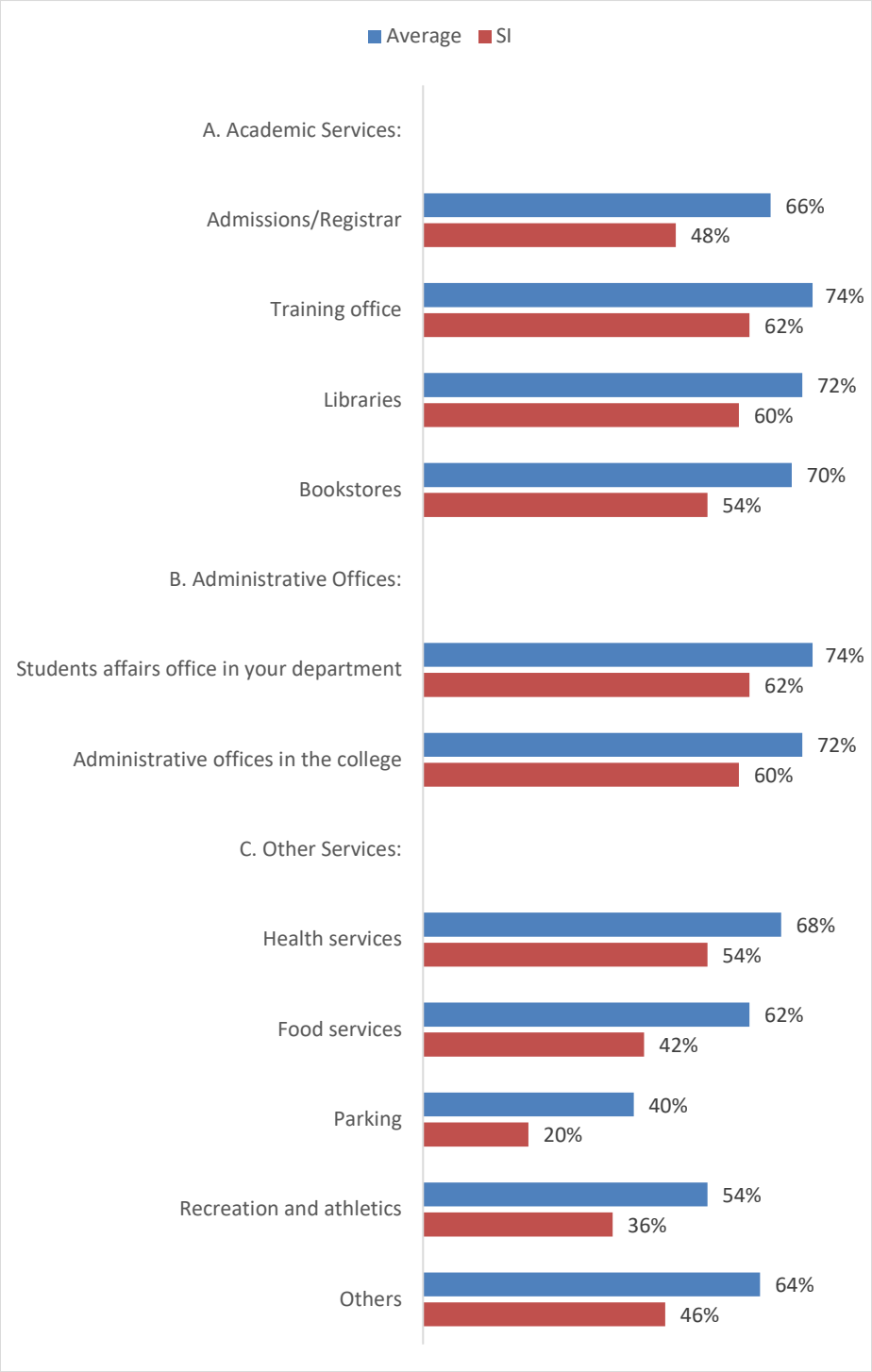


Figure 4 Assessment of the Support Services at Kuwait University

Table 8 Differences among engineering departments – outcome attributes

#	Outcomes		Chemical	civil	computer	electrical	ims	mechanical	petroleum	College
1	Apply knowledge of mathematics, physics and engineering.	Average Rating	76%	82%	74%	82%	80%	80%	82%	80%
		Satisfaction Index	56%	80%	56%	82%	66%	70%	76%	72%
2	Design and conduct experiments, as well as to analyze and interpret data.	Average Rating	72%	76%	76%	80%	80%	78%	84%	78%
		Satisfaction Index	54%	64%	64%	72%	76%	66%	80%	66%
3	Design a system, component, or process to meet desired needs.	Average Rating	72%	76%	76%	76%	78%	74%	76%	76%
		Satisfaction Index	50%	60%	60%	60%	62%	54%	70%	58%
4	Function effectively in teams.	Average Rating	80%	80%	84%	80%	88%	78%	84%	80%
		Satisfaction Index	66%	72%	78%	70%	92%	60%	80%	72%
5	Identify, formulate, and solve engineering problems.	Average Rating	78%	82%	76%	80%	82%	78%	80%	80%
		Satisfaction Index	62%	78%	68%	74%	84%	66%	76%	72%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	Average Rating	74%	80%	84%	78%	86%	76%	86%	80%
		Satisfaction Index	54%	74%	78%	68%	80%	66%	80%	70%
7	Communicate effectively (written reports).	Average Rating	74%	80%	82%	72%	86%	82%	82%	78%
		Satisfaction Index	56%	70%	72%	54%	80%	76%	80%	66%
8	Communicate effectively (oral presentations).	Average Rating	70%	74%	80%	76%	80%	74%	84%	76%
		Satisfaction Index	52%	58%	68%	62%	80%	54%	76%	62%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	Average Rating	76%	80%	82%	78%	80%	80%	78%	78%
		Satisfaction Index	62%	68%	76%	62%	80%	64%	66%	66%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	Average Rating	76%	78%	82%	76%	86%	76%	80%	78%
		Satisfaction Index	58%	62%	72%	62%	76%	58%	76%	64%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	Average Rating	72%	78%	74%	70%	72%	72%	76%	74%
		Satisfaction Index	52%	62%	60%	54%	58%	50%	66%	56%

12	Ability to use computing technology in communications.	Average Rating	76%	82%	84%	78%	78%	80%	78%	78%
		Satisfaction Index	60%	70%	78%	64%	62%	70%	70%	66%
13	Ability to use computing technology in engineering analysis/design.	Average Rating	74%	76%	82%	78%	78%	78%	80%	76%
		Satisfaction Index	50%	58%	76%	60%	70%	60%	70%	60%
14	Ability to use state of the art techniques, and tools in engineering practice.	Average Rating	70%	72%	80%	76%	80%	76%	76%	74%
		Satisfaction Index	40%	48%	70%	58%	76%	60%	60%	56%
15	Apply the knowledge of probability and statistics.	Average Rating	70%	72%	70%	68%	84%	72%	74%	72%
		Satisfaction Index	40%	54%	50%	46%	76%	52%	70%	52%

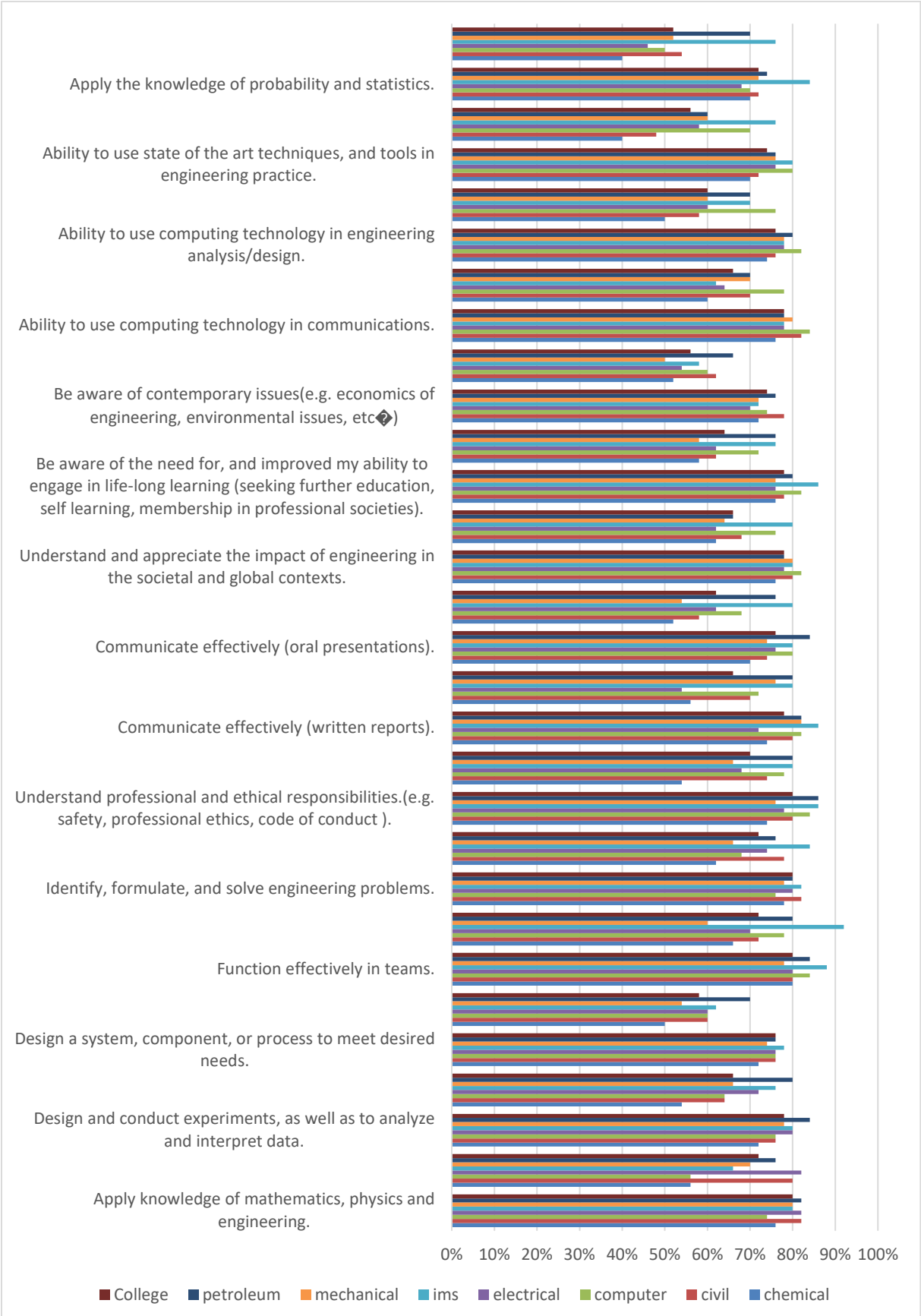


Figure 5 Differences among engineering departments – outcome attributes

Table 9 Differences among departments – Relevance of Educational Objectives

#	Objectives		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	Average Rating	76%	82%	74%	82%	80%	80%	82%	80%
		Satisfaction Index	56%	80%	56%	82%	66%	70%	76%	72%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	Average Rating	72%	76%	76%	80%	80%	78%	84%	78%
		Satisfaction Index	54%	64%	64%	72%	76%	66%	80%	66%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	Average Rating	72%	76%	76%	76%	78%	74%	76%	76%
		Satisfaction Index	50%	60%	60%	60%	62%	54%	70%	58%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	Average Rating	80%	80%	84%	80%	88%	78%	84%	80%
		Satisfaction Index	66%	72%	78%	70%	92%	60%	80%	72%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	Average Rating	78%	82%	76%	80%	82%	78%	80%	80%
		Satisfaction Index	62%	78%	68%	74%	84%	66%	76%	72%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	Average Rating	74%	80%	84%	78%	86%	76%	86%	80%
		Satisfaction Index	54%	74%	78%	68%	80%	66%	80%	70%

Figure 6 Differences among departments – Relevance of Educational Objectives

Table 10 Differences among departments – Learning environment

#	Item		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
A. Quality of instruction and support for learning provided by the faculty members in:										
1	- Sciences (Mathematics, Physics, Chemistry)	Average Rating	68%	66%	56%	72%	72%	70%	76%	68%
		Satisfaction Index	44%	40%	18%	56%	54%	46%	60%	46%
2	- Computers (Programming and usage of software packages)	Average Rating	62%	68%	72%	72%	74%	68%	72%	68%
		Satisfaction Index	38%	50%	60%	50%	58%	44%	50%	48%
3	- Humanities and Social sciences	Average Rating	68%	70%	68%	72%	80%	70%	72%	70%
		Satisfaction Index	46%	42%	52%	48%	62%	50%	58%	50%
4	- General Engineering	Average Rating	70%	72%	66%	74%	82%	72%	76%	72%
		Satisfaction Index	48%	48%	42%	62%	80%	52%	60%	54%
5	- Engineering within major	Average Rating	76%	78%	76%	80%	90%	78%	78%	78%
		Satisfaction Index	66%	64%	62%	72%	84%	62%	66%	68%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		Average Rating	74%	72%	66%	74%	74%	70%	72%	72%
		Satisfaction Index	56%	52%	42%	56%	62%	44%	60%	54%
C. Quality of advice by the staff with respect to:										
7	- Academic planning	Average Rating	68%	70%	68%	70%	84%	70%	76%	70%
		Satisfaction Index	44%	52%	50%	54%	74%	50%	66%	52%
8	- Career planning	Average Rating	66%	68%	62%	68%	74%	68%	68%	68%
		Satisfaction Index	44%	48%	26%	52%	54%	44%	50%	46%
D. Equity of treatment by:										
9	- Academic administrators	Average Rating	66%	72%	64%	72%	82%	68%	72%	70%
		Satisfaction Index	42%	54%	40%	54%	78%	42%	66%	52%
10	- Faculty	Average Rating	68%	72%	68%	70%	72%	68%	64%	70%
		Satisfaction Index	42%	56%	44%	52%	42%	46%	40%	48%
11	- Teaching assistants and engineers	Average Rating	72%	76%	68%	74%	66%	78%	72%	72%
		Satisfaction Index	56%	64%	50%	56%	50%	60%	56%	56%
12	- Fellow students	Average Rating	68%	72%	72%	74%	76%	72%	66%	72%

		Satisfaction Index	52%	54%	56%	56%	54%	54%	40%	54%
E. Quality of the facilities:										
13	- Classrooms	Average Rating	56%	56%	54%	60%	60%	58%	68%	58%
		Satisfaction Index	32%	30%	18%	34%	34%	36%	56%	32%
14	- Science laboratories	Average Rating	58%	60%	52%	62%	64%	50%	66%	58%
		Satisfaction Index	36%	30%	18%	40%	34%	26%	40%	32%
15	- Engineering Laboratories	Average Rating	58%	62%	56%	62%	60%	54%	64%	60%
		Satisfaction Index	34%	32%	26%	38%	30%	30%	30%	32%
16	- Computing facilities	Average Rating	62%	60%	60%	62%	64%	54%	72%	60%
		Satisfaction Index	38%	30%	38%	42%	34%	26%	56%	36%
17	- Libraries	Average Rating	66%	68%	64%	64%	68%	62%	74%	66%
		Satisfaction Index	48%	48%	42%	38%	50%	38%	56%	44%

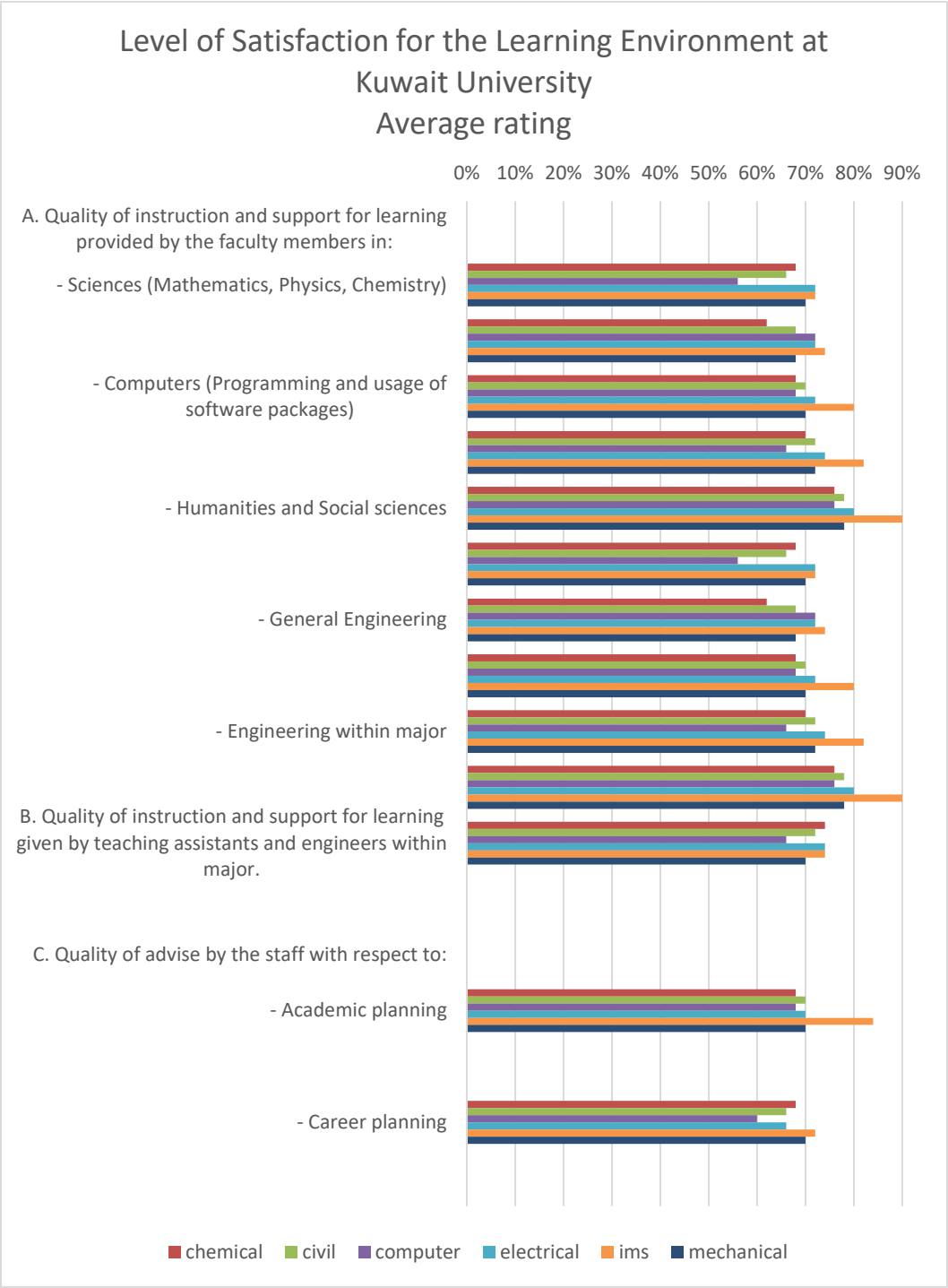
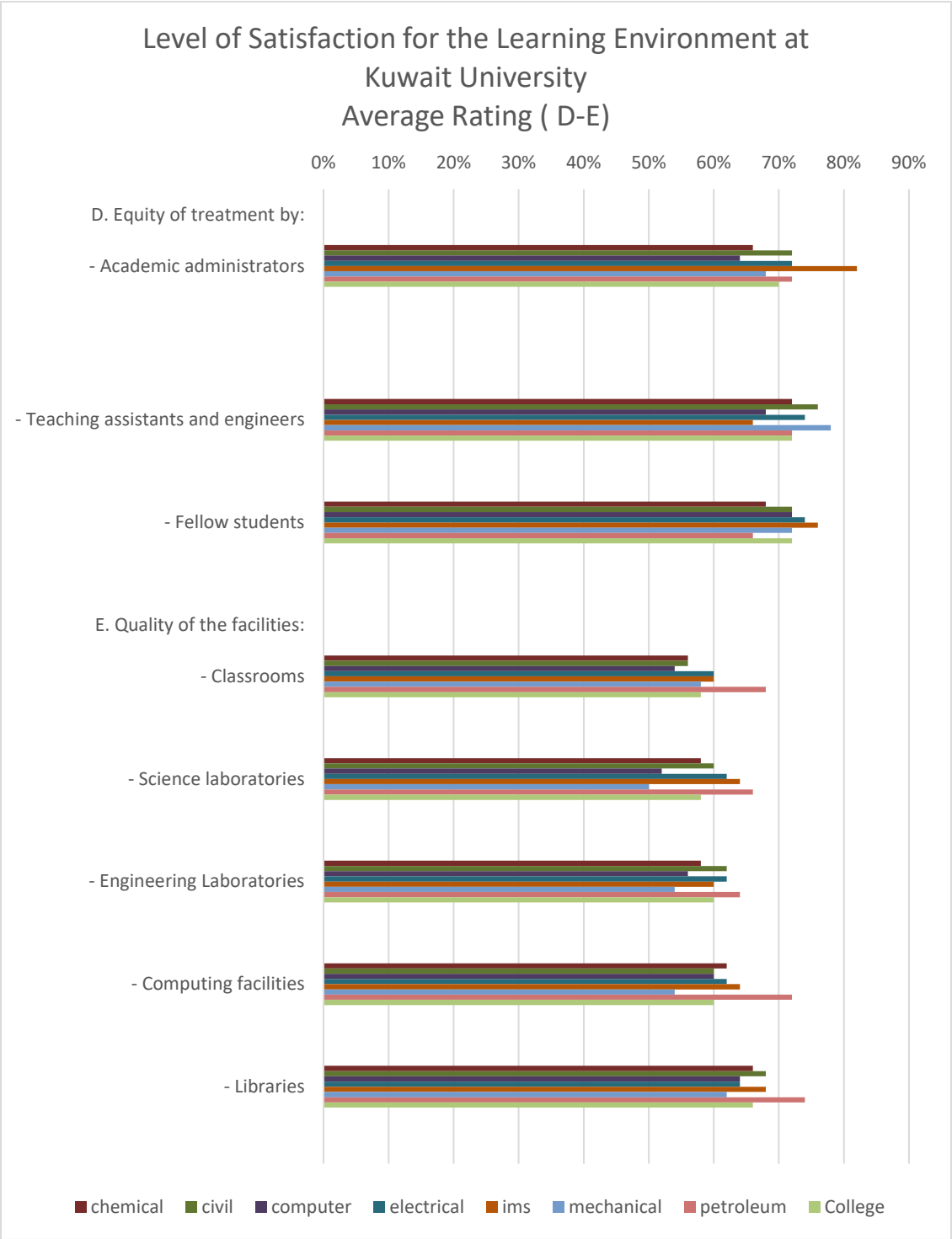


Figure 7 Differences among departments – Learning environment



Cont. Figure 7 Differences among departments – Learning environment

Table 11 Differences among departments – Support Services

#	Item		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
A. Academic Services:										
1	Admissions/Registrar	Average Rating	70%	70%	62%	64%	60%	68%	70%	66%
		Satisfaction Index	50%	58%	32%	46%	38%	52%	60%	48%
2	Training office	Average Rating	72%	76%	74%	74%	70%	72%	74%	74%
		Satisfaction Index	62%	68%	52%	66%	54%	56%	56%	62%
3	Libraries	Average Rating	70%	76%	72%	72%	80%	70%	74%	72%
		Satisfaction Index	52%	66%	54%	56%	80%	58%	68%	60%
4	Bookstores	Average Rating	66%	72%	68%	70%	78%	68%	74%	70%
		Satisfaction Index	48%	60%	40%	56%	62%	56%	70%	54%
B. Administrative Offices:										
5	Students affairs office in your department	Average Rating	70%	76%	74%	70%	74%	76%	78%	74%
		Satisfaction Index	52%	66%	62%	62%	60%	72%	76%	62%
6	Administrative offices in the college	Average Rating	70%	76%	74%	68%	78%	74%	78%	72%
		Satisfaction Index	52%	68%	70%	52%	66%	64%	76%	60%
C. Other Services:										
7	Health services	Average Rating	62%	70%	68%	70%	66%	68%	72%	68%
		Satisfaction Index	42%	58%	46%	56%	58%	56%	60%	54%
8	Food services	Average Rating	60%	66%	58%	60%	64%	66%	66%	62%
		Satisfaction Index	36%	48%	26%	38%	50%	48%	50%	42%
9	Parking	Average Rating	40%	38%	30%	46%	38%	40%	52%	40%
		Satisfaction Index	18%	16%	0%	28%	18%	24%	36%	20%
10	Recreation and athletics	Average Rating	48%	58%	58%	56%	50%	54%	66%	54%
		Satisfaction Index	28%	42%	32%	34%	22%	44%	48%	36%
11	Others	Average Rating	62%	70%	50%	66%	54%	64%	68%	64%
		Satisfaction Index	40%	52%	20%	48%	28%	46%	66%	46%

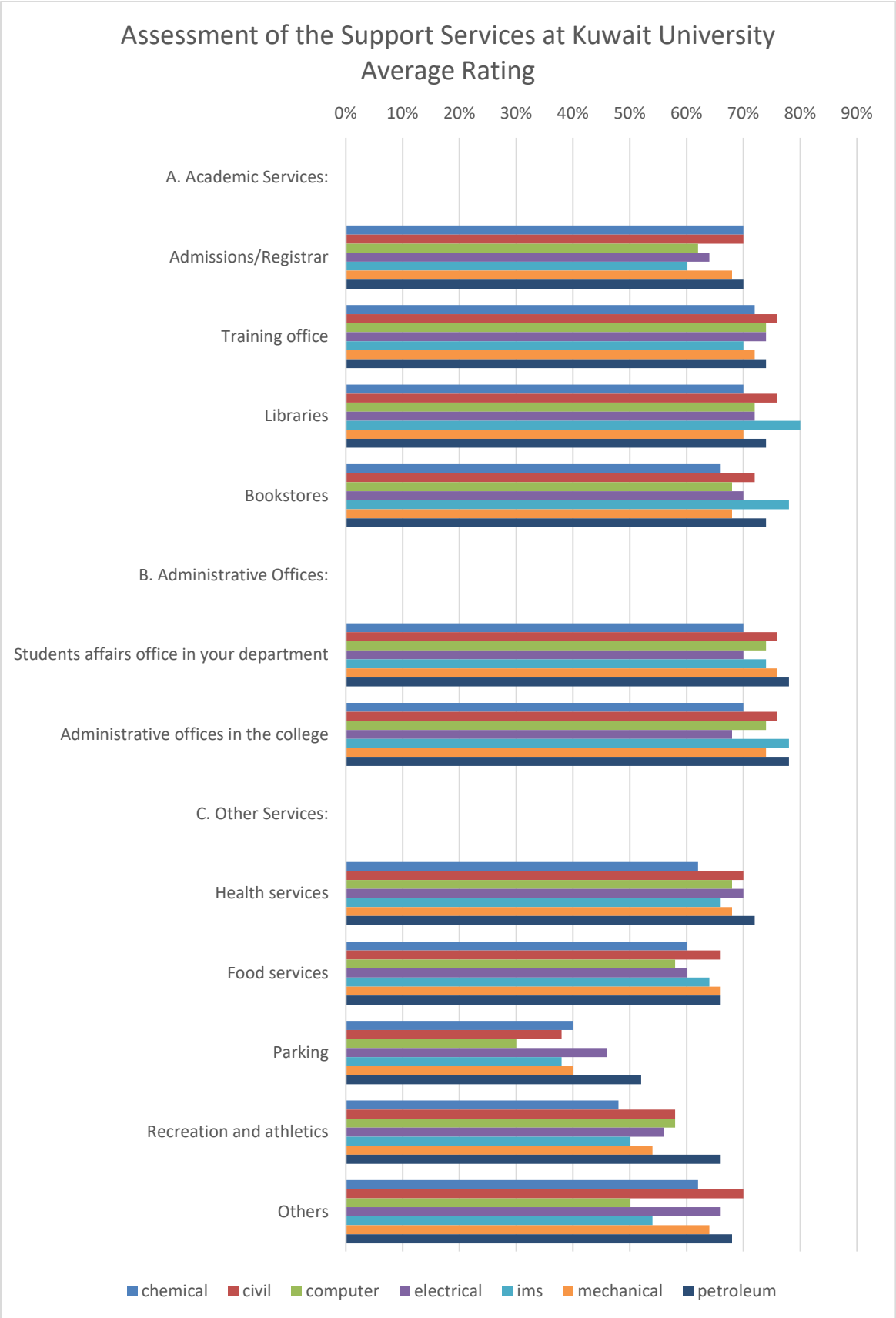


Figure 8 Differences among departments – Support Services

Exit Survey Form

Kuwait University
College of Engineering & Petroleum
Office of Academic Assessment

EXIT SURVEY FORM

P.O. Box 5969, Safat 13060, Kuwait http://www.eng.kuniv.edu/oaa/ *Tel: 2498-3331*

The faculty and students of Kuwait University are dedicated to the continuous improvement of undergraduate engineering programs. The information that you provide through this survey will be very helpful in this process. We appreciate your help in filling out this survey. Thank you for your cooperation and support.

Engineering major:

☐ Civil ☐ Chemical ☐ Computer ☐ Electrical
☐ Petroleum ☐ Mechanical ☐ Industrial & Management Systems

Name (optional):_____ Gender: ☐ M ☐ F

Year of Graduation: _____

Overall GPA: _____

Future plans (check all that apply)

☐ I intend to work in the government sector.
☐ I intend to work in the private sector.
☐ I intend to go to graduate school.
☐ I intend to start my own business.
☐ I intend to do other things (please specify): _____

Please fill in the tables in the next pages concerning the skills, abilities and attributes that you have acquired while studying Engineering at Kuwait University.

1. Assessment of Abilities, Skills and Attributes Acquired at Kuwait University.

Please rate each of the following skills, abilities or attributes in terms of how well your education at Kuwait University prepared you for them.

Skills, abilities, and attributes	*Level of preparation*					
	Very well prepared	*Well prepared*	*Prepared*	*Somewhat prepared*	*Not prepared*	*Cannot evaluate*
1. Apply knowledge of mathematics, physics and engineering.	☐	☐	☐	☐	☐	☐
2. Design and conduct experiments, as well as to analyze and interpret data.	☐	☐	☐	☐	☐	☐
3. Design a system, component, or process to meet desired needs.	☐	☐	☐	☐	☐	☐
4. Function effectively in teams.	☐	☐	☐	☐	☐	☐
5. Identify, formulate, and solve engineering problems.	☐	☐	☐	☐	☐	☐
6. Understand professional and ethical responsibilities. ***(e.g. safety, professional ethics, code of conduct).***	☐	☐	☐	☐	☐	☐
7. Communicate effectively (written reports).	☐	☐	☐	☐	☐	☐
8. Communicate effectively (oral presentations).	☐	☐	☐	☐	☐	☐
9. Understand and appreciate the impact of engineering in the societal and global contexts.	☐	☐	☐	☐	☐	☐
10. Be aware of the need for, and improve my ability to engage in life-long learning ***(seeking further education, self-learning, membership in professional societies).***	☐	☐	☐	☐	☐	☐
11. Be aware of contemporary issues ***(e.g. economics of engineering, environmental issues, etc.)***	☐	☐	☐	☐	☐	☐
12. Ability to use computing technology in communications.	☐	☐	☐	☐	☐	☐
13. Ability to use computing technology in engineering analysis/design	☐	☐	☐	☐	☐	☐
14. Ability to use state of the art techniques, and tools in engineering practice.	☐	☐	☐	☐	☐	☐
15. Apply the knowledge of probability and statistics.	☐	☐	☐	☐	☐	☐

2. Educational Objectives

Please rate the following elements of program educational objectives according to how important they are to you career plans.

Educational Objectives Elements	*Importance to career*					
	Extremely important	*Very important*	*Important*	*Somewhat important*	*Not important*	*Cannot rate*
1. Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	☐	☐	☐	☐	☐	☐
2. Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	☐	☐	☐	☐	☐	☐
3. Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	☐	☐	☐	☐	☐	☐
4. Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	☐	☐	☐	☐	☐	☐
5. Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	☐	☐	☐	☐	☐	☐
6. Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	☐	☐	☐	☐	☐	☐

3. Assessment of the Learning Environment at Kuwait University

Please indicate your satisfaction with each of the following aspects of your experience at Kuwait University.

	Level of satisfaction					
	Extremely satisfied	*Very satisfied*	*Satisfied*	*Somewhat satisfied*	*Not satisfied*	*Cannot evaluate*
A. Quality of instruction and support for learning provided by the faculty members in:						
- Sciences (Mathematics, Physics, Chemistry)	☐	☐	☐	☐	☐	☐
- Computers (Programming and usage of software packages)	☐	☐	☐	☐	☐	☐
- Humanities and Social sciences	☐	☐	☐	☐	☐	☐
- General Engineering,	☐	☐	☐	☐	☐	☐
- Engineering within major	☐	☐	☐	☐	☐	☐
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.	☐	☐	☐	☐	☐	☐
C. Quality of advice by the staff with respect to:						
- Academic planning	☐	☐	☐	☐	☐	☐
- Career planning	☐	☐	☐	☐	☐	☐
D. Equity of treatment by:						
- Academic administrators	☐	☐	☐	☐	☐	☐
- Faculty	☐	☐	☐	☐	☐	☐
- Teaching assistants and engineers	☐	☐	☐	☐	☐	☐
- Fellow students	☐	☐	☐	☐	☐	☐
E. Quality of the facilities:						
- Classrooms	☐	☐	☐	☐	☐	☐
- Science laboratories	☐	☐	☐	☐	☐	☐
- Engineering Laboratories	☐	☐	☐	☐	☐	☐
- Computing facilities	☐	☐	☐	☐	☐	☐
- Libraries	☐	☐	☐	☐	☐	☐

4. Assessment of Support Services

Please rate the quality of services provided by the listed offices. In addition, please indicate the amount of interaction that you had with each office.

	Quality of services						*Amount of interaction*			
	Very good	*Good*	*Adequate*	*Poor*	*Very poor*	*No opinion*		*Much*	*Some*	*Little or none*
A. Academic Services:										
Admissions/Registrar	☐	☐	☐	☐	☐	☐		☐	☐	☐
Training office	☐	☐	☐	☐	☐	☐		☐	☐	☐
Libraries	☐	☐	☐	☐	☐	☐		☐	☐	☐
Bookstores	☐	☐	☐	☐	☐	☐		☐	☐	☐
B. Administrative Offices:										
Students' affairs office in your department	☐	☐	☐	☐	☐	☐		☐	☐	☐
Administrative offices in the college	☐	☐	☐	☐	☐	☐		☐	☐	☐
C. Other Services:										
Health services	☐	☐	☐	☐	☐	☐		☐	☐	☐
Food services	☐	☐	☐	☐	☐	☐		☐	☐	☐
Parking	☐	☐	☐	☐	☐	☐		☐	☐	☐
Recreation and athletics	☐	☐	☐	☐	☐	☐		☐	☐	☐
Others (specify) _____	☐	☐	☐	☐	☐	☐		☐	☐	☐

5. General Assessment

Please answer the following questions:

A. Please list some very important skills that you think you had learned in the engineering program.

_____

_____

_____

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

_____

_____

_____

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary).

_____

_____

_____

Chemical Engineering Program

Exit Survey Results

For the Fall 2018-2019

February 2019

CHEMICAL ENGINEERING VISION & MISSION

Mission

The Mission Statement of the Chemical Engineering Department is to produce chemical engineers capable of meeting the technological and societal needs of Kuwait and the Gulf region.

This mission is fulfilled by providing a broad curriculum in the basic sciences, process systems and design, unit operations, and in modern experimental and computing techniques. The program strives for academic excellence through continual assessment of the outcomes. The focus is on petroleum and petrochemical technology, environmental engineering, and water technology.

Vision

The Chemical Engineering Department strives for regional and international recognition in teaching, research and community service. It enriches the standard of engineering education, continually enhances the quality and competence of graduated students, and stimulates outstanding research activities that contribute to the advancement of the chemical engineering profession and the development of local and regional industry.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

Graduates of the Undergraduate Program in Chemical Engineering will

4. be productive in their chosen careers in the public and private sectors; especially in the fields of oil refining, petrochemicals, and water;
5. advance in responsibility and leadership in their careers and engage in ongoing professional development by successfully pursuing graduate studies and/or other learning activities; and
6. contribute to the welfare of society by directing their skills and technical expertise toward addressing the needs of the community and the environment

Student Outcomes

The Chemical Engineering Program provides an integrated curriculum enabling students to develop skills and attitudes that are essential to their future successful career. The Program will ensure that its engineers can demonstrate the following capabilities:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Chemical Engineering**

*** Number of Students participated in the survey:**

58	Male	15	26%
	Female	43	74%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	46	79%
Intend to work in the private sector.	39	67%
Intend to go to graduate school.	17	29%
Intend to start my own business	21	36%
Intend to do other things	9	16%
Continue my study		
No		
continue my studies my master's degree		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of questions about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	17	15	24	2	0	0	3.8	2.8
		29%	26%	41%	3%	0%	0%	76%	56%
2	Design and conduct experiments, as well as to analyze and interpret data.	16	15	19	3	4	1	3.6	2.7
		28%	26%	33%	5%	7%	2%	72%	54%
3	Design a system, component, or process to meet desired needs.	14	15	22	5	1	1	3.6	2.5
		24%	26%	38%	9%	2%	2%	72%	50%
4	Function effectively in teams.	19	18	18	1	0	2	4	3.3
		33%	31%	31%	2%	0%	3%	80%	66%
5	Identify, formulate, and solve engineering problems.	14	21	22	0	0	1	3.9	3.1
		24%	36%	38%	0%	0%	2%	78%	62%
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	20	11	19	3	4	1	3.7	2.7
		34%	19%	33%	5%	7%	2%	74%	54%
7	Communicate effectively (written reports).	17	15	19	5	1	1	3.7	2.8
		29%	26%	33%	9%	2%	2%	74%	56%
8	Communicate effectively (oral presentations).	14	16	17	6	4	1	3.5	2.6
		24%	28%	29%	10%	7%	2%	70%	52%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	16	19	18	3	1	1	3.8	3.1
		28%	33%	31%	5%	2%	2%	76%	62%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	14	19	20	2	1	2	3.8	2.9
		24%	33%	34%	3%	2%	3%	76%	58%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	15	14	19	7	1	2	3.6	2.6
		26%	24%	33%	12%	2%	3%	72%	52%
12	Ability to use computing technology in communications.	19	15	17	3	2	2	3.8	3
		33%	26%	29%	5%	3%	3%	76%	60%
13	Ability to use computing technology in engineering analysis/design.	17	12	24	3	1	1	3.7	2.5
		29%	21%	41%	5%	2%	2%	74%	50%
14	Ability to use state of the art techniques, and tools in engineering practice.	14	9	29	2	3	1	3.5	2
		24%	16%	50%	3%	5%	2%	70%	40%
15	Apply the knowledge of probability and statistics.	16	7	25	8	1	1	3.5	2
		28%	12%	43%	14%	2%	2%	70%	40%
16	Competence in tackling Chemical/process engineering problems that are important to local and regional industries.	15	11	26	4	1	1	3.6	2.3
		26%	19%	45%	7%	2%	2%	72%	46%

Table 2 Assessment of the student outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 75%	2.7 54%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.6 72%	2.5 50%
3	an ability to communicate effectively with a range of audiences	3.6 72%	2.7 54%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.7 75%	2.9 57%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.0 80%	3.3 66%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.6 72%	2.5 50%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	2.9 58%

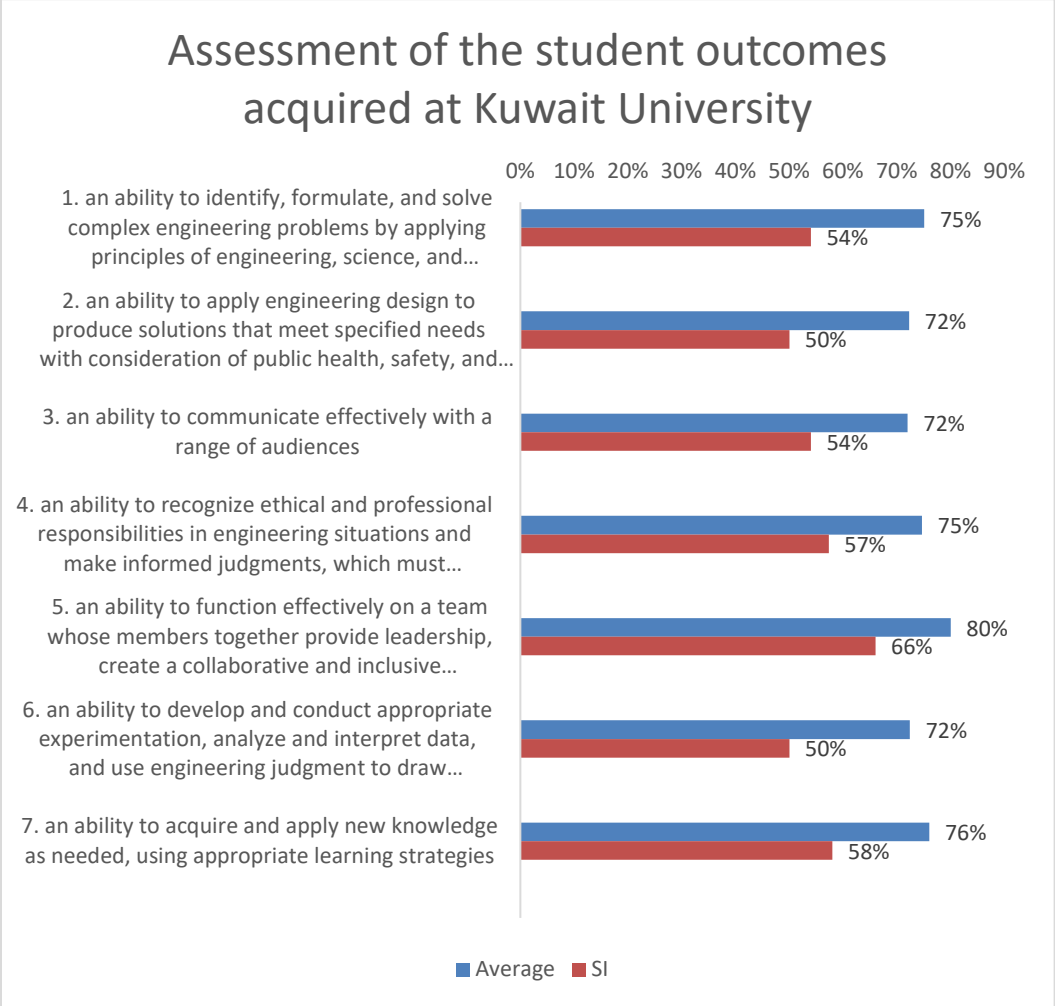


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	19	13	19	2	1	4	3.9	3
		33%	22%	33%	3%	2%	7%	78%	60%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	18	16	16	3	0	5	3.9	3.2
		31%	28%	28%	5%	0%	9%	78%	64%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	16	14	17	5	1	5	3.7	2.8
		28%	24%	29%	9%	2%	9%	74%	56%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	13	16	20	3	1	5	3.7	2.7
		22%	28%	34%	5%	2%	9%	74%	54%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	16	16	16	5	1	4	3.8	3
		28%	28%	28%	9%	2%	7%	76%	60%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	14	18	19	1	2	4	3.8	3
		24%	31%	33%	2%	3%	7%	76%	60%

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	13	13	19	8	5	0	3.4	2.2
		22%	22%	33%	14%	9%	0%	68%	44%
2	- Computers (Programming and usage of software packages)	9	12	16	10	8	3	3.1	1.9
		16%	21%	28%	17%	14%	5%	62%	38%
3	- Humanities and Social sciences	10	15	16	10	3	4	3.4	2.3
		17%	26%	28%	17%	5%	7%	68%	46%
4	- General Engineering	14	13	21	7	2	1	3.5	2.4
		24%	22%	36%	12%	3%	2%	70%	48%
5	- Engineering within major	17	20	13	3	3	2	3.8	3.3
		29%	34%	22%	5%	5%	3%	76%	66%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		19	13	21	2	3	0	3.7	2.8
		33%	22%	36%	3%	5%	0%	74%	56%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	17	9	15	12	5	0	3.4	2.2
		29%	16%	26%	21%	9%	0%	68%	44%
8	- Career planning	18	7	14	15	4	0	3.3	2.2
		31%	12%	24%	26%	7%	0%	66%	44%
D. Equity of treatment by:									
9	- Academic administrators	14	9	17	10	5	3	3.3	2.1
		24%	16%	29%	17%	9%	5%	66%	42%
10	- Faculty	11	13	21	7	4	2	3.4	2.1
		19%	22%	36%	12%	7%	3%	68%	42%
11	- Teaching assistants and engineers	15	16	17	3	5	2	3.6	2.8
		26%	28%	29%	5%	9%	3%	72%	56%
12	- Fellow students	12	17	15	7	5	2	3.4	2.6
		21%	29%	26%	12%	9%	3%	68%	52%
E. Quality of the facilities:									
13	- Classrooms	7	11	16	9	14	1	2.8	1.6
		12%	19%	28%	16%	24%	2%	56%	32%
14	- Science laboratories	9	11	14	10	13	1	2.9	1.8
		16%	19%	24%	17%	22%	2%	58%	36%
15	- Engineering Laboratories	9	10	17	8	12	2	2.9	1.7
		16%	17%	29%	14%	21%	3%	58%	34%
16	- Computing facilities	11	10	16	7	11	3	3.1	1.9
		19%	17%	28%	12%	19%	5%	62%	38%
17	- Libraries	11	16	14	10	6	1	3.3	2.4
		19%	28%	24%	17%	10%	2%	66%	48%

Table 5: Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	12	16	17	10	2	1	3.5	2.5	14	37	7
		21%	28%	29%	17%	3%	2%	70%	50%	24%	64%	12%
2	Training office	11	21	10	10	0	6	3.6	3.1	15	31	12
		19%	36%	17%	17%	0%	10%	72%	62%	26%	53%	21%
3	Libraries	11	18	18	7	2	2	3.5	2.6	20	28	10
		19%	31%	31%	12%	3%	3%	70%	52%	34%	48%	17%
4	Bookstores	10	16	14	10	4	4	3.3	2.4	16	30	12
		17%	28%	24%	17%	7%	7%	66%	48%	28%	52%	21%
B. Administrative Offices:												
5	Students affairs office in your department	12	17	14	10	2	3	3.5	2.6	15	29	14
		21%	29%	24%	17%	3%	5%	70%	52%	26%	50%	24%
6	Administrative offices in the college	12	15	13	10	2	6	3.5	2.6	16	27	15
		21%	26%	22%	17%	3%	10%	70%	52%	28%	47%	26%
C. Other Services:												
7	Health services	11	11	11	12	7	6	3.1	2.1	14	23	21
		19%	19%	19%	21%	12%	10%	62%	42%	24%	40%	36%
8	Food services	9	12	15	13	8	1	3	1.8	23	26	9
		16%	21%	26%	22%	14%	2%	60%	36%	40%	45%	16%
9	Parking	5	5	5	6	32	5	2	0.9	26	17	15
		9%	9%	9%	10%	55%	9%	40%	18%	45%	29%	26%
10	Recreation and athletics	6	7	3	16	15	11	2.4	1.4	14	21	23
		10%	12%	5%	28%	26%	19%	48%	28%	24%	36%	40%
11	Others	8	3	4	7	5	31	3.1	2	11	21	17
		14%	5%	7%	12%	9%	53%	62%	40%	19%	36%	29%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Group work,presentation skills,solving engineering problems, skills in chemical engineering programs

Using eng. Calculator, talking well in presentations, using eng programs

Easy to contact with all doctor ..

Being honest

Flexibility , relationship building, computer skills, teamwork

1- time management 2- teamwork

I learn how can i think

Oral presentation, making full report

Using HYSYS , excel and Visio

Solving problems, team work and leadership

TEAMWORK, LEADERSHIP

Mathmatics skills

The ability to identify and solve problems. Computer skills: very good in Microsoft office programs (word - excell - PowerPoint) Computing programs skills: (HYSIS-excel-mathlab) Presentation skills:public speaking skills Good designer.

Word , programming

Solve the Mathematical problems

team working programming skills and Microsoft office programs like excel and powerpoint.

Communication skills, to have more patience

Collaborative work _ solving the problems of the plant _ the use of computer

Self confidence / improved our mind and thinking / teamwork and cooperation / time managment

Solving problems:fast typing: writing an academic reports

Patience

team work , searching for information and get it fast with high quality, knowing the important of each equipment and materials.

I have improved my English language a lot and I learned the important basics of my major

I've learned working in teams skills, programming skills.

solving engineering problems

leadership, confidence in presenting, cooperate, appreciate group work, good listener to other openions and more appreciative to other ideas, improved my listening and understanding my colleges, manual book research, learned more in my library books along with research, know how to use engineering programs.

Experiments and analyzing the results. Designing refinary.

Be good in present ion

Critical thinking and better problem solving skills

Communication with others Understanding facts

Gets More information

ethics

Thinking carefully

Leadership and group work

Many skills like : how to solve engineering problems, computer technology, how to design

team work and leadership

team work and comuting skills

analyzing data , apply engineering knowledge to real life applications, good teamwork skills .

analyzing data, apply engineering knowledge, teamwork skills

Through my studying journey i learned the following: 1-Solving mathematical problems. 2-Working with groups. 3-Witting Formal emails and reports.

HYSIS,pispys(circuit)...etc

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Training course

How to search for information, working more on chemical equipments

Training in chemical engineering..

Present some subjects and give our opinions

communicate effectively in oral presentation , improving our english

1- how to associate engineering problems with actual local problems 2- more design classes to better understand the equipments

Computer courses

Some computer programmes

CRITICAL THINKING

There is no courses to improve the public speaking skills.

New languages

No thing

techniques of speech

Interships , training and not being within the fields

Practical side

Writing skills ,searching skills

Programming skills Communication skills

I think the laboratories are so poor and was not useful (needs improvement)

training

during my university education, i didn't get a chance to apply my knowledge practically that is applying and utilizing my knowledge in a real refinery nor going through solving refinery actual critical situation.

Not good

Some computer skills

No idea

Not going to trips in the field of our major was really depressing because we did not get the chance to see what people in our major are doing in real life

Everything is useful

ethics of engineering

new sections

Social communication

Constructing an applicable project in real life

a lot of skills

chemical engineering training

participate in seminars and internships.

participate in seminars and internships

I have suffered from the parking in the past 5 years so please improve it!

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Improve facilities

Improving the science part in the program

Make it more easier..

more interactive classes and more filed trips within the major courses (not as elective course)

I think our department should have more professors

Parking issues must be solved. Academic administrators should be more helpful.

Change the old doctors

extra free courses that can benefit the student and can be written on the CV

More supportive with the students and at least everyone should feel that they are in a college not in a place were to hide from

Ensure the ability of Dr. to deliver information to students

the laboraties in the college should be improved

Improve registration system

Grading policy should be improved to avoid the unfair grading by some professors who change the grades of some students to a grade that they really do not deserve.

The college needs more parking.

open up more opportunities for recently graduates to be able to enroll in master and phd to get more chance to join the university faculty. establish an actual visit to a different refineries in kuwait that will improve the students learning and understanding.

The doctor be content with the student

Change everything

Good communication with the students . Improving the ways of learing. Getting them a little bit involved in their field of studies.

Keep going forward

new professionals

Improving parkings and classrooms Having larger indoor areas

improve labs and study area

include oral presentations in more programs, replace laboratories equipment with new ones.

include oral presentation in more programs, replace laboratories equipments

You should care for students need for subjects and care for classes...etc

Civil Engineering Program
Exit Survey Results

Fall Semester 2018-2019

February 2019

CIVIL ENGINEERING MISSION & VISION

The mission and vision of the Civil Engineering Department are consistent with that of Kuwait University. They have been developed with input from all constituencies (e.g. faculty, students and employers).

Mission

The mission of the CE program is to serve the people of the State of Kuwait by providing a broad and high-quality education to its students for a successful professional career, to conduct strong basic and applied research for national needs, and to serve the industry, Civil Engineering profession, and community at large through innovative solutions, dissemination of knowledge, and advancement of Civil Engineering in major areas of the profession

Vision

The vision of the CE program is to establish an outstanding program of regional and international reputation for providing a quality engineering education, excellent research and services to the profession and the community; to produce top-quality civil engineers; and to employ principles of continual quality improvement to enhance its program.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The graduates of the CE program will:

4. Engage in productive careers in a broad range of civil engineering areas in public and private sectors in Kuwait, or successfully pursue advanced studies and careers in academia or in other research environments;
5. Advance in responsibility and leadership in their careers and engage in continuous professional development to respond to rapidly evolving technological and social challenges; and
6. Contribute to the welfare of the society and the development of the profession through responsible practice of engineering and involvement in professional organizations.

8.

Student Outcomes

Graduates of the Civil Engineering program shall demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Civil Engineering**

*** Number of Students participated in the survey:**

71	Male	10	14%
	Female	58	82%

Survey Results:

*** Students' Future plans:**

No. of students who:

Intend to work in the government sector.	59	83%
Intend to work in the private sector.	36	51%
Intend to go to graduate school.	27	38%
Intend to start my own business	17	24%
Intend to do other things	3	4%

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	20	33	12	2	0	4	4.1	4
		28%	46%	17%	3%	0%	6%	82%	80%
2	Design and conduct experiments, as well as to analyze and interpret data.	16	27	21	2	1	4	3.8	3.2
		23%	38%	30%	3%	1%	6%	76%	64%
3	Design a system, component, or process to meet desired needs.	15	25	25	2	0	4	3.8	3
		21%	35%	35%	3%	0%	6%	76%	60%
4	Function effectively in teams.	25	23	13	4	2	4	4	3.6
		35%	32%	18%	6%	3%	6%	80%	72%
5	Identify, formulate, and solve engineering problems.	24	28	11	3	1	4	4.1	3.9
		34%	39%	15%	4%	1%	6%	82%	78%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	23	26	15	1	2	4	4	3.7
		32%	37%	21%	1%	3%	6%	80%	74%
7	Communicate effectively (written reports).	22	24	18	2	0	5	4	3.5
		31%	34%	25%	3%	0%	7%	80%	70%
8	Communicate effectively (oral presentations).	23	16	17	10	1	4	3.7	2.9
		32%	23%	24%	14%	1%	6%	74%	58%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	22	23	19	2	0	5	4	3.4
		31%	32%	27%	3%	0%	7%	80%	68%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	20	21	25	1	0	4	3.9	3.1
		28%	30%	35%	1%	0%	6%	78%	62%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	22	19	21	4	0	5	3.9	3.1
		31%	27%	30%	6%	0%	7%	78%	62%
12	Ability to use computing technology in communications.	29	18	18	0	2	4	4.1	3.5
		41%	25%	25%	0%	3%	6%	82%	70%
13	Ability to use computing technology in engineering analysis/design.	20	18	23	5	0	5	3.8	2.9
		28%	25%	32%	7%	0%	7%	76%	58%
14	Ability to use state of the art techniques, and tools in engineering practice.	14	17	27	6	0	7	3.6	2.4
		20%	24%	38%	8%	0%	10%	72%	48%
15	Apply the knowledge of probability and statistics.	9	27	22	8	0	5	3.6	2.7
		13%	38%	31%	11%	0%	7%	72%	54%
16	Proficiency in design at the entry level and recognition of professional practice issues in recognized major areas of civil engineering.	15	18	27	6	1	4	3.6	2.5
		21%	25%	38%	8%	1%	6%	72%	50%

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 79%	3.5 70%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.8 76%	3.0 60%
3	an ability to communicate effectively with a range of audiences	3.9 77%	3.2 64%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 79%	3.4 67%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.0 80%	3.6 72%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 76%	3.0 60%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.1 62%

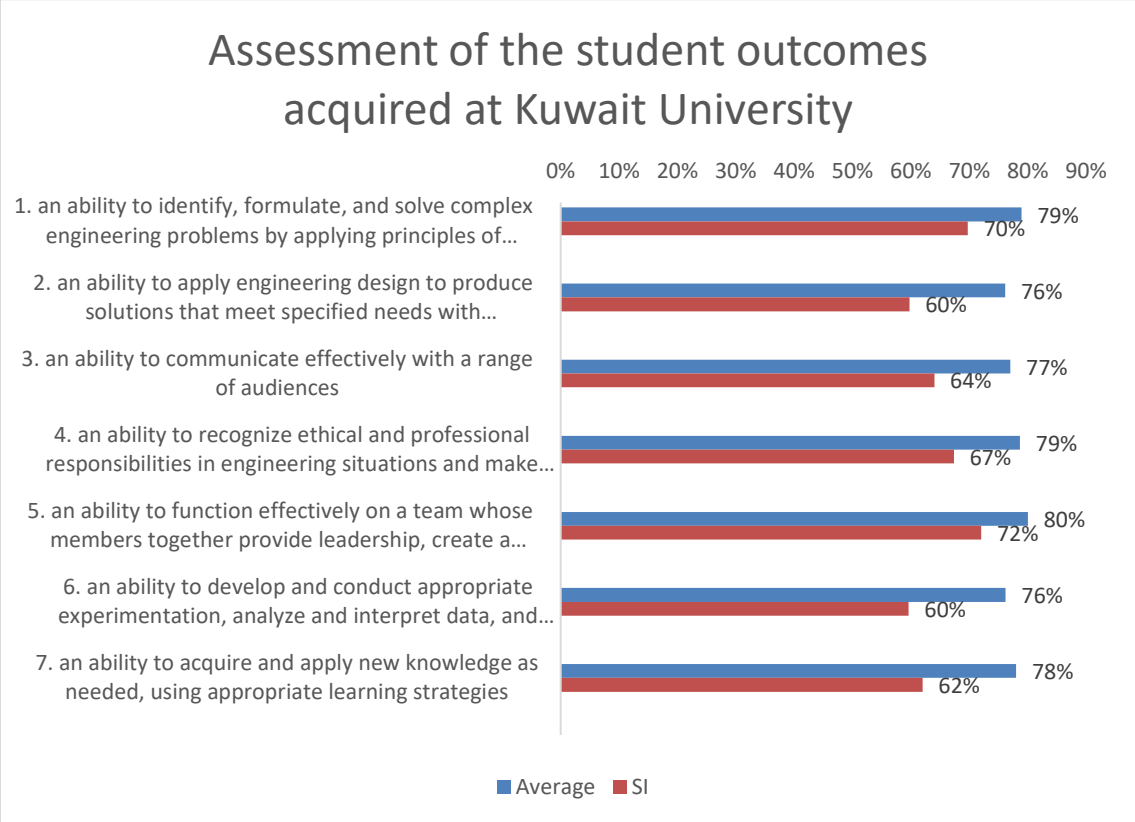


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	33	18	13	1	0	6	4.3	3.9
		46%	25%	18%	1%	0%	8%	86%	78%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	28	23	13	1	0	6	4.2	3.9
		39%	32%	18%	1%	0%	8%	84%	78%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	22	26	12	4	1	6	4	3.7
		31%	37%	17%	6%	1%	8%	80%	74%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	22	28	14	0	1	6	4.1	3.8
		31%	39%	20%	0%	1%	8%	82%	76%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	17	27	18	2	0	7	3.9	3.4
		24%	38%	25%	3%	0%	10%	78%	68%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	23	18	16	6	0	8	3.9	3.3
		32%	25%	23%	8%	0%	11%	78%	66%

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	18	9	24	8	7	5	3.3	2
		25%	13%	34%	11%	10%	7%	66%	40%
2	- Computers (Programming and usage of software packages)	14	18	17	8	6	8	3.4	2.5
		20%	25%	24%	11%	8%	11%	68%	50%
3	- Humanities and Social sciences	13	14	27	8	1	8	3.5	2.1
		18%	20%	38%	11%	1%	11%	70%	42%
4	- General Engineering	10	22	32	1	2	4	3.6	2.4
		14%	31%	45%	1%	3%	6%	72%	48%
5	- Engineering within major	23	20	19	3	2	4	3.9	3.2
		32%	28%	27%	4%	3%	6%	78%	64%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		14	20	22	8	1	6	3.6	2.6
		20%	28%	31%	11%	1%	8%	72%	52%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	13	20	21	8	2	7	3.5	2.6
		18%	28%	30%	11%	3%	10%	70%	52%
8	- Career planning	9	22	23	9	2	6	3.4	2.4
		13%	31%	32%	13%	3%	8%	68%	48%
D. Equity of treatment by:									
9	- Academic administrators	13	21	20	7	1	9	3.6	2.7
		18%	30%	28%	10%	1%	13%	72%	54%
10	- Faculty	11	25	19	8	1	7	3.6	2.8
		15%	35%	27%	11%	1%	10%	72%	56%
11	- Teaching assistants and engineers	16	25	19	5	0	6	3.8	3.2
		23%	35%	27%	7%	0%	8%	76%	64%
12	- Fellow students	15	20	20	9	0	7	3.6	2.7
		21%	28%	28%	13%	0%	10%	72%	54%
E. Quality of the facilities:									
13	- Classrooms	9	10	16	18	12	6	2.8	1.5
		13%	14%	23%	25%	17%	8%	56%	30%
14	- Science laboratories	12	8	20	17	8	6	3	1.5
		17%	11%	28%	24%	11%	8%	60%	30%
15	- Engineering Laboratories	10	11	27	13	6	4	3.1	1.6
		14%	15%	38%	18%	8%	6%	62%	32%
16	- Computing facilities	8	12	25	14	8	4	3	1.5
		11%	17%	35%	20%	11%	6%	60%	30%
17	- Libraries	19	13	17	10	7	5	3.4	2.4
		27%	18%	24%	14%	10%	7%	68%	48%

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	15	24	14	8	6	4	3.5	2.9	20	41	7
		21%	34%	20%	11%	8%	6%	70%	58%	28%	58%	10%
2	Training office	19	24	13	6	2	7	3.8	3.4	14	45	9
		27%	34%	18%	8%	3%	10%	76%	68%	20%	63%	13%
3	Libraries	21	23	12	6	4	5	3.8	3.3	27	28	13
		30%	32%	17%	8%	6%	7%	76%	66%	38%	39%	18%
4	Bookstores	18	22	12	12	3	4	3.6	3	23	33	12
		25%	31%	17%	17%	4%	6%	72%	60%	32%	46%	17%
B. Administrative Offices:												
5	Students affairs office in your department	21	21	13	6	2	8	3.8	3.3	23	31	14
		30%	30%	18%	8%	3%	11%	76%	66%	32%	44%	20%
6	Administrative offices in the college	15	29	13	4	3	7	3.8	3.4	21	34	13
		21%	41%	18%	6%	4%	10%	76%	68%	30%	48%	18%
C. Other Services:												
7	Health services	14	19	13	5	6	14	3.5	2.9	19	20	29
		20%	27%	18%	7%	8%	20%	70%	58%	27%	28%	41%
8	Food services	11	20	16	10	7	7	3.3	2.4	36	28	4
		15%	28%	23%	14%	10%	10%	66%	48%	51%	39%	6%
9	Parking	3	6	4	13	34	11	1.9	0.8	33	22	13
		4%	8%	6%	18%	48%	15%	38%	16%	46%	31%	18%
10	Recreation and athletics	12	9	3	12	13	22	2.9	2.1	14	23	31
		17%	13%	4%	17%	18%	31%	58%	42%	20%	32%	44%
11	Others	7	8	9	2	3	42	3.5	2.6	16	13	21
		10%	11%	13%	3%	4%	59%	70%	52%	23%	18%	30%

* Open-ended questions (unedited student comments)

Please list some very important skills that you think you had learned in the engineering program.

Leadership mathematics and engineering

Leadership mathematics

Communication skills, team work and time management.

Working in team, patince and confidence

Soft-skills: 1. Self-confidence 2. Time and stress management 3. Leadership 4. Communication skills
Academic skills: 1. Design a complete solution 2. Self-learning 3. Connecting knowledge

Well, I think I learned how to deal with different kinds of people

Mathematics, physics, chemistry

Mathematics, physics, chemistry

-Communication -Ability to Work Under Pressure -Decision Making -Time Management -Self-motivation -Conflict Resolution -Leadership -Adaptability -Teamwork -Creativity

I learned how to search for a problem and try to solve it in an engineering way

Solving engineering problems

Ability to work under pressure, time management, leadership

Be on time, better at group work, improved presentation skills

I learned how to think as an Engineer , how to use Engineering programs, how to write a professional report.

I learned how to think to solve problem with lest cost and time

Group work

Team work

Communicating skills, Leadership and working in a group, Engineering sense

writing report - collecting data

Alot of skills

1- Environmental issues. 2- Management engineering and legal aspects. 3- Traffic and transportation engineering. 4- Learned how to deal with team by as leader in the group member.

How to model

Autocad

engineering programmes and designing

Solve engineering problems.

Team work .

Leadership Team work Many programes

Importance of teamwork. Respecting the deadline. Importance of time management.

Improvement my work

how to study from a book properly, to present in front of people, to discuss ideas and theories, to applicate what we learn in laps, to relate the problems and what we learned to real life, the ethics of an engineer, to learn how to work under high pressure

Presentation skills and infographics design.

Organization Time management Responsibility Team work Working under pressure

Self confidene -new experinse -motivation

Self confedinse -motivation

How to work in a team

Team work

Staad pro engineering program, designing of the structure of building and understanding the environment of engineering

Teamwork

collaboration skill , time management

teamwork

Presenting

self learning, self confidence and teamwork

designing

self learning, self confidence and teamwork

how to solve such a problem

Presentation skills, working as and solving problems related to engineering

Team work

Team work

Work as a team

Planning, applying what i learned, interacting with others and collecting data

Engineering skills and abilities

Work well in teams Identify and solve problems

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

High technology technic

Using new technics

Students do not see the practical side of being an engineer a lot. There should be more trips to let the student see what they are studying to make them understand more.

Field work in the sites since is important to qualify civil engineer for the job and it must be baisc not optional course

1. Ability to write a scientific paper 2. Ability to invent new solutions 3. Field experience

Creativity

only the practical application of our study in the site is not in the lab

no answer

I didn't got the chance to train in field training

nothing on my mind RN

Their is almost no skills that i cant learn in Kuwait University, since you need just to ask how to do this item and every one are more than happy to answer you.

Practice in general ...we did not see much of working sites

Field work

Physical activities- Civil engineering programs

Practical experience

comparison study with reality

Civil programming

Civil Engineering needs more fields trips to face the real issues that we study and how to apply the methods.

Visiting sites

I did not got the chance to train in field.

Oral presentation

How to use what we were taught in real life. Softwares that are serve and used in civil engineering.

Patience

Managed my time

learn more how to use new computer programmes related to solving problems in a class

Sites visit.

Technical skills Practical experience instead of theoretical subjects

The most of study in ku depended of the theoritcal not tests or visits sites .

In ku the most study is focusing around the theoritical not visinting sites.

Revit

Social skills

real professional life

Practical work

I don't Know

I don't Know

Presenting my project

Presenting my work

Advanced oral presentation skills, practical engineering skills not only theoretical

Oral presentation

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

adding more parking, making a more advanced web-site for registration

Try to improve learningby using more Intelligent methods

Improve the learning methods

Im so grateful and proud to be a kuwait university alumna , i would like to thank all those who are working hard to facilitate the educational process for students. I reccommend the following: 1. To have a center where good student with high GPA can teach others. 2. To have a special center that is accessible to everyone where they can read, learn, teach and do anything related to scientific researches.

Some understanding between doctors and students. special cases sympathy and needs. some doctors needs to get out of college for having no manners or ethics.

the practical application will be in a location to increase the information and confidence of the engineer

more field trips

Even if I wrote my suggestions you will not pay attention to it :)

Thank you KU for every single memory! it has been a great journey

Better parking spots for the students to reduce accidents or any harm. The Engineering cafeteria should be more clean.

I suggest to reduce the amounts of homeworks in the 2##, second year materials. For Example, Strength of Materials, Circuit, and statics. Because the second year materials contain a lot of labs, which is hard for the students to carry them with the huge amounts of homeworks. Also, because some students homes are far away from the university and located in a very crowded and low streets level of service. Thanks.

Provide more sections in register period .

Let students go to fields to gain experiences !

---

add more practical approaches and more useful civil engineering programs

---

we need fair doctors and new building

In my point of view KU need to encourage the students by difference skills not only exams or quizes they should do more oral presentations, training in the real life as part of the course so the student enjoy studying and learning.

Take care about the group GPA

Each course should have some trips or something the students can do it by themselves!

---

some subjects must not be an ellictive courses such as steel

No comment..

Improve the facility such as the class room, library.

New pc in lab

Courses in the most important softwares that are used in the region.

Put for every one his own academics

---

provide more parking, more classes to register for

I suggests to put trips to site in every course that may have to for better understanding and learning For civil engineering department

---

Online academic courses Teach Students How to Learn Provide more academic tutorial

---

By focusing more visiting sites more assays not only focus of theoritical studies.

In my openion focusing more by visiting sites give samples for any subject to keep in mind not only theoritical

---

to offer more cite visits

Everything is fine

---

develop a career course to teach professional life

Be more releastic

---

add more courses that help students to communicate with the others fluently

---

Using more updated softwares that can easily solve problems.

Computer Engineering Program
Exit Survey Results

Fall Semester 2018 - 2019
February 2019

COMPUTER ENGINEERING MISSION & VISION

Mission

The mission of the undergraduate program in computer engineering is to foster excellence in computing by

- Providing a high quality, accredited educational experience that prepares students for success in engineering practice and advanced studies.
- Serving the academic, professional, and business computing communities in the State of Kuwait.
- Creating, expanding and disseminating knowledge through scholarly activities.

Vision

The vision of computer engineering department is to be recognized regionally and internationally as a provider of high-quality undergraduate and graduate education that emphasizes scholastic excellence, practical skills, and professional competency to become leaders in exploring new frontiers in computing. In addition, our vision is to conduct state-of-the-art research and deliver community services.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

Our Computer Engineering Program Educational Objectives have been established to highlight the areas of student achievement that will satisfy constituent's needs, both now and in the future, and fulfill the program's mission.

Educational objectives of the undergraduate computer engineering program at Kuwait University are to produce graduates who will be:

4. Practitioners of computer engineering with productive careers in computing professions in public and private organizations, and academia.
5. Engaged in professional development and learning activities by pursuing advanced studies or training in engineering or other disciplines.
6. Contributors to the welfare of society, and the development of their business and professional environments.

Student Outcomes

Graduates of the Computer Engineering Program shall have the knowledge and skills described below:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Computer Engineering**

*** Number of Students participated in the survey:**

28	Male	0	0%
	Female	28	100%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	23	82%
Intend to work in the private sector.	16	57%
Intend to go to graduate school.	14	50%
Intend to start my own business	10	36%
Intend to do other things	2	7%
Freelancing		
Nothing		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	8	7	8	4	0	1	3.7	2.8
		29%	25%	29%	14%	0%	4%	74%	56%
2	Design and conduct experiments, as well as to analyze and interpret data.	9	9	6	3	1	0	3.8	3.2
		32%	32%	21%	11%	4%	0%	76%	64%
3	Design a system, component, or process to meet desired needs.	8	9	9	2	0	0	3.8	3
		29%	32%	32%	7%	0%	0%	76%	60%
4	Function effectively in teams.	14	8	4	2	0	0	4.2	3.9
		50%	29%	14%	7%	0%	0%	84%	78%
5	Identify, formulate, and solve engineering problems.	6	13	6	3	0	0	3.8	3.4
		21%	46%	21%	11%	0%	0%	76%	68%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	15	7	3	3	0	0	4.2	3.9
		54%	25%	11%	11%	0%	0%	84%	78%
7	Communicate effectively (written reports).	13	7	6	2	0	0	4.1	3.6
		46%	25%	21%	7%	0%	0%	82%	72%
8	Communicate effectively (oral presentations).	12	7	6	3	0	0	4	3.4
		43%	25%	21%	11%	0%	0%	80%	68%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	13	8	5	2	0	0	4.1	3.8
		46%	29%	18%	7%	0%	0%	82%	76%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	13	7	5	3	0	0	4.1	3.6
		46%	25%	18%	11%	0%	0%	82%	72%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	7	9	7	3	1	1	3.7	3
		25%	32%	25%	11%	4%	4%	74%	60%
12	Ability to use computing technology in communications.	14	8	4	2	0	0	4.2	3.9
		50%	29%	14%	7%	0%	0%	84%	78%
13	Ability to use computing technology in engineering analysis/design.	12	9	5	2	0	0	4.1	3.8
		43%	32%	18%	7%	0%	0%	82%	76%
14	Ability to use state of the art techniques, and tools in engineering practice.	10	9	6	2	0	1	4	3.5
		36%	32%	21%	7%	0%	4%	80%	70%
15	Apply the knowledge of probability and statistics.	7	7	7	7	0	0	3.5	2.5
		25%	25%	25%	25%	0%	0%	70%	50%
16	A knowledge of mathematics through differential and integral calculus, and basic, computer, and engineering sciences, necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components, as appropriate to computer engineering.	8	5	7	7	1	0	3.4	2.3
		29%	18%	25%	25%	4%	0%	68%	46%
17	A knowledge of discrete mathematics.	8	10	6	4	0	0	3.8	3.2
		29%	36%	21%	14%	0%	0%	76%	64%

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 76%	3.3 66%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.9 77%	3.1 63%
3	an ability to communicate effectively with a range of audiences	4.1 81%	3.5 70%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 79%	3.4 68%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.2 84%	3.9 78%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.9 78%	3.2 64%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.1 82%	3.6 72%

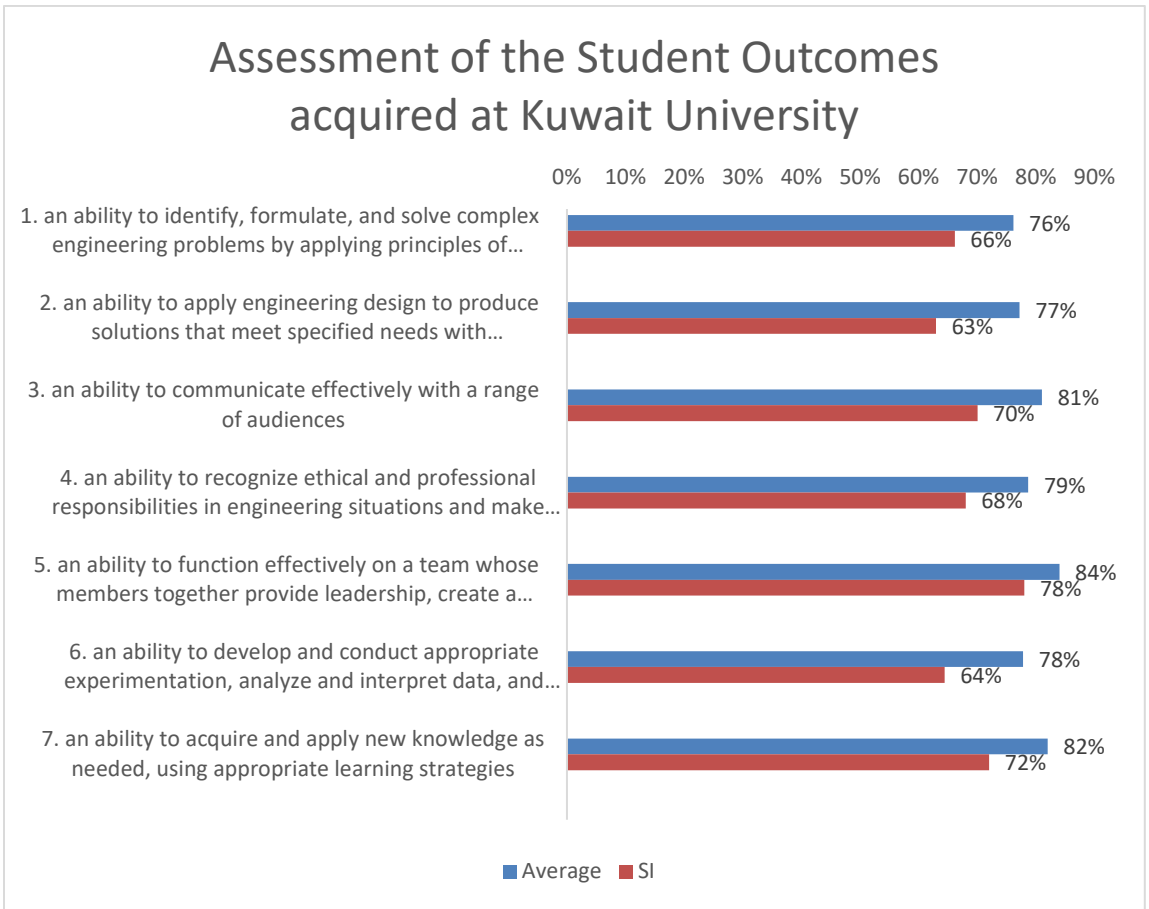


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	3	6	2	2	0	15	3.8	3.5
		11%	21%	7%	7%	0%	54%	76%	70%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	5	4	2	2	0	15	3.9	3.5
		18%	14%	7%	7%	0%	54%	78%	70%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	3	5	3	2	0	15	3.7	3.1
		11%	18%	11%	7%	0%	54%	74%	62%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	1	6	2	3	1	15	3.2	2.7
		4%	21%	7%	11%	4%	54%	64%	54%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	3	4	4	2	0	15	3.6	2.7
		11%	14%	14%	7%	0%	54%	72%	54%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	3	6	2	2	0	15	3.8	3.5
		11%	21%	7%	7%	0%	54%	76%	70%

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	1	4	13	7	3	0	2.8	0.9
		4%	14%	46%	25%	11%	0%	56%	18%
2	- Computers (Programming and usage of software packages)	8	9	3	7	1	0	3.6	3
		29%	32%	11%	25%	4%	0%	72%	60%
3	- Humanities and Social sciences	7	7	6	4	3	1	3.4	2.6
		25%	25%	21%	14%	11%	4%	68%	52%
4	- General Engineering	3	9	9	6	1	0	3.3	2.1
		11%	32%	32%	21%	4%	0%	66%	42%
5	- Engineering within major	8	9	6	4	0	1	3.8	3.1
		29%	32%	21%	14%	0%	4%	76%	62%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		4	8	10	5	1	0	3.3	2.1
		14%	29%	36%	18%	4%	0%	66%	42%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	3	10	8	5	0	2	3.4	2.5
		11%	36%	29%	18%	0%	7%	68%	50%
8	- Career planning	1	6	13	6	0	2	3.1	1.3
		4%	21%	46%	21%	0%	7%	62%	26%
D. Equity of treatment by:									
9	- Academic administrators	6	5	7	6	3	1	3.2	2
		21%	18%	25%	21%	11%	4%	64%	40%
10	- Faculty	7	5	9	3	3	1	3.4	2.2
		25%	18%	32%	11%	11%	4%	68%	44%
11	- Teaching assistants and engineers	8	6	6	5	3	0	3.4	2.5
		29%	21%	21%	18%	11%	0%	68%	50%
12	- Fellow students	9	6	6	5	1	1	3.6	2.8
		32%	21%	21%	18%	4%	4%	72%	56%
E. Quality of the facilities:									
13	- Classrooms	3	2	11	8	4	0	2.7	0.9
		11%	7%	39%	29%	14%	0%	54%	18%
14	- Science laboratories	1	4	9	10	3	1	2.6	0.9
		4%	14%	32%	36%	11%	4%	52%	18%
15	- Engineering Laboratories	2	5	8	11	2	0	2.8	1.3
		7%	18%	29%	39%	7%	0%	56%	26%
16	- Computing facilities	3	7	7	7	3	1	3	1.9
		11%	25%	25%	25%	11%	4%	60%	38%
17	- Libraries	5	7	8	5	3	0	3.2	2.1
		18%	25%	29%	18%	11%	0%	64%	42%

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	1	8	12	6	1	0	3.1	1.6	8	16	4
		4%	29%	43%	21%	4%	0%	62%	32%	29%	57%	14%
2	Training office	7	6	9	3	0	3	3.7	2.6	5	19	4
		25%	21%	32%	11%	0%	11%	74%	52%	18%	68%	14%
3	Libraries	6	9	10	3	0	0	3.6	2.7	5	14	9
		21%	32%	36%	11%	0%	0%	72%	54%	18%	50%	32%
4	Bookstores	3	8	13	3	0	1	3.4	2	5	16	7
		11%	29%	46%	11%	0%	4%	68%	40%	18%	57%	25%
B. Administrative Offices:												
5	Students affairs office in your department	5	11	7	3	0	2	3.7	3.1	9	14	5
		18%	39%	25%	11%	0%	7%	74%	62%	32%	50%	18%
6	Administrative offices in the college	4	14	6	1	1	2	3.7	3.5	8	16	4
		14%	50%	21%	4%	4%	7%	74%	70%	29%	57%	14%
C. Other Services:												
7	Health services	7	4	7	4	2	4	3.4	2.3	4	13	11
		25%	14%	25%	14%	7%	14%	68%	46%	14%	46%	39%
8	Food services	1	6	13	5	3	0	2.9	1.3	10	14	4
		4%	21%	46%	18%	11%	0%	58%	26%	36%	50%	14%
9	Parking	0	0	2	9	15	2	1.5	0	8	13	7
		0%	0%	7%	32%	54%	7%	30%	0%	29%	46%	25%
10	Recreation and athletics	1	5	7	3	3	9	2.9	1.6	6	10	12
		4%	18%	25%	11%	11%	32%	58%	32%	21%	36%	43%
11	Others	0	2	3	3	2	18	2.5	1	3	7	10
		0%	7%	11%	11%	7%	64%	50%	20%	11%	25%	36%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

I have learned that our university needs some changes to improve and be better

---

That kuwait university needs some improvement towards the future

---

Engineering Thinking , management skill and the courage to talk and show

---

patience

---

handling hardware in my major. designing projects easily

---

html, css, java, c++

---

presentation skills

---

time management, working in as group, self-learning, learning the basic of programming, ethical responsibilities, improving my presentation skills, thinking outside the box.

---

ebot, arduino ...

---

writing skills

---

presentation, writing reports, communication, teamwork, working under pressure, planning

---

Solving problems , presented skills ,coding,thinking out the box.

Critical Thinking, problem solving, writing reports, researching, programming, project management, Software development, social skills, presentation skills

---

Group work, how to think like an engineer.

Solving problems

Design Analysis Cooperation Some coding skills

C language

Writing professional reports, delivering professional presentations, communicating with professionals within the same work environment, the ability to self-study any chosen topic, how to create websites and databases, how to program robotics, how to evaluate the results and meet user requirements, etc.

Working ethics, java and C++ programing , project managment , data management, presenting skills , cooperative work

---

The ability to learn concepts and apply them to other problems. ... Basic mathematical skills. ... A passion for problem solving. ... Good communication skills. ... Good writing skills. ... Confidence around a computer. ... Resourcefulness.

Arduino, Assemply language, c++, java

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

I did not get to implement some skills in the real world like programming and building a whole system by my own. these things that would improve our skills in the department.

I didnt get to implement skills in the real world as programming and building a whole robot (a whole system built by me)

Management skill

Presentation skills

---

android studio

---

more programming language, more practical learning

---

learning different coding skills (we only have 2 essential programming courses: C++ and Java and one elective course), I wish that I had the opportunity to learn data base, networking programing and robotics. there is some courses that is not available and it needed especially now like AI, python, swift and cyber and security courses.

---

nothing yet

---

training

---

training courses

---

time management

Learning new coding language.

Training in companies speciallized in each Course that requires practical training to ensure acquiring the Practical skill in real life environment

---

The law of Kuwait.

Software program such as android studio - database - python

---

iOS development, Android development, network security and advance databases

---

Robotics , intelligent algorithm , computer organisation, VLSI

Data base, iOS and android app development

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

I think that we need more labs to implement more and memorize less to really know what is our major is all about. these things i had to make for myself outside the university actions.

I would like to add more labs and implementation and less memorizing and theoritical information

---

Distance Learning Apply more practical education

---

improve the lab equipments

---

hire good engineers that understand the subjects and know how to teach good. build some parks to avoid problems. take actions when student complains because he/she needs help rather than being ignored

---

please add more electives to the department. there is so many courses that would really benefit the students and also fun at the same time. Security is an important subject these days, also AI. you need to change some subjects, we need to learn what is actually inside a computer, how to build a computer. also, computer engineering is a major that need some business courses due to the major itself. there was no need for the four electives that we need to take from Art university, instead, it should be replaced with business courses.

---

hire good engineers please ...

---

need more training courses

---

more training courses

---

more practical work less theoretical

Adding more choices of course to be choosers.

Practical training to the learnt concepts such as dividing each course into theoretical and practical. Providing more sections as the lack of enough section delays graduating. Providing more parkings. Training the facility members of supporting staff on how to interact with students in a professional manner and treating students with equality regardless of their gender. Reducing the unnecessary assignments that are not useful to the educational objectives of the courses.

Whoever does this program should be close to students to know how to improve it.

---

the curriculum seems out of date. we should learn how to make application on iOS and Android as well as develop and maintain advance real-time databases. These topics should be in separate mandatory courses for every computer engineering student at Kuwait university.

Longer lectures , tutorials and revisions, self training & learning centre, local competitions ,

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Update major sheet

Electrical Engineering Program
Exit Survey Results

Fall Semester 2018 – 2019

February 2019

ELECTRICAL ENGINEERING MISSION & VISION

Mission

The mission of the Electrical Engineering Program is:

- To provide a quality and broad engineering education.
- To conduct strong basic and applied research, to dissemination of knowledge, and to contribute to advancement of science and technology.
- To serve the industry, the profession, and the community at large through innovative solutions.

Vision

The vision of the program is to gain regional and international recognition for providing a quality engineering education, outstanding research programs and exceptional community service. In addition, it is envisioned that the graduates of the program will be successful in their professional careers and/or graduate studies, prepared for professional creativity and leadership, and lead productive lives that contribute to improvement of society.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The Program Educational Objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

The EE Program has adopted the following Program Educational Objectives.

4. Graduates will successfully engage in careers in the broad range of electrical engineering areas to serve the needs of both private and public sectors.
5. Graduates will engage in continuous professional development activities, seek learning opportunities including graduate studies, and adapt to the rapid changes in work environment.
6. Graduates will contribute to the well-being of the society and environment through responsible practice of engineering profession.

Student Outcomes

The graduates of the Electrical Engineering Program will have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Electrical Engineering**

*** Number of Students participated in the survey:**

84	Male	18	21%
	Female	66	79%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	62	74%
Intend to work in the private sector.	43	51%
Intend to go to graduate school.	18	21%
Intend to start my own business	27	32%
Intend to do other things	4	5%
to work on saving the environment		
pursue masters degree		

* **Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

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Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcomes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	29	39	13	2	0	1	4.1	4.1
		35%	46%	15%	2%	0%	1%	82%	82%
2	Design and conduct experiments, as well as to analyze and interpret data.	23	37	22	1	1	0	4	3.6
		27%	44%	26%	1%	1%	0%	80%	72%
3	Design a system, component, or process to meet desired needs.	23	27	28	5	1	0	3.8	3
		27%	32%	33%	6%	1%	0%	76%	60%
4	Function effectively in teams.	32	26	20	5	1	0	4	3.5
		38%	31%	24%	6%	1%	0%	80%	70%
5	Identify, formulate, and solve engineering problems.	31	31	18	3	1	0	4	3.7
		37%	37%	21%	4%	1%	0%	80%	74%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	25	31	20	5	2	1	3.9	3.4
		30%	37%	24%	6%	2%	1%	78%	68%
7	Communicate effectively (written reports).	18	26	27	7	3	3	3.6	2.7
		21%	31%	32%	8%	4%	4%	72%	54%
8	Communicate effectively (oral presentations).	27	25	21	6	4	1	3.8	3.1
		32%	30%	25%	7%	5%	1%	76%	62%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	28	24	25	6	1	0	3.9	3.1
		33%	29%	30%	7%	1%	0%	78%	62%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	27	24	25	6	1	1	3.8	3.1
		32%	29%	30%	7%	1%	1%	76%	62%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	18	26	22	15	2	1	3.5	2.7
		21%	31%	26%	18%	2%	1%	70%	54%
12	Ability to use computing technology in communications.	30	23	24	5	2	0	3.9	3.2
		36%	27%	29%	6%	2%	0%	78%	64%
13	Ability to use computing technology in engineering analysis/design.	30	20	28	4	2	0	3.9	3
		36%	24%	33%	5%	2%	0%	78%	60%
14	Ability to use state of the art techniques, and tools in engineering practice.	27	21	27	7	1	1	3.8	2.9
		32%	25%	32%	8%	1%	1%	76%	58%
15	Apply the knowledge of probability and statistics.	21	18	27	10	7	1	3.4	2.3
		25%	21%	32%	12%	8%	1%	68%	46%
16	Knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.	37	20	19	4	3	1	4	3.4
		44%	24%	23%	5%	4%	1%	80%	68%
17	An ability to analyze, design, and implement systems containing hardware and software components.	23	33	18	7	3	0	3.8	3.3
		27%	39%	21%	8%	4%	0%	76%	66%

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 78%	3.6 72%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.8 76%	3.0 60%
3	an ability to communicate effectively with a range of audiences	3.7 74%	2.9 58%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 75%	3.1 63%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.0 80%	3.5 70%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 76%	3.0 60%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	3.1 62%

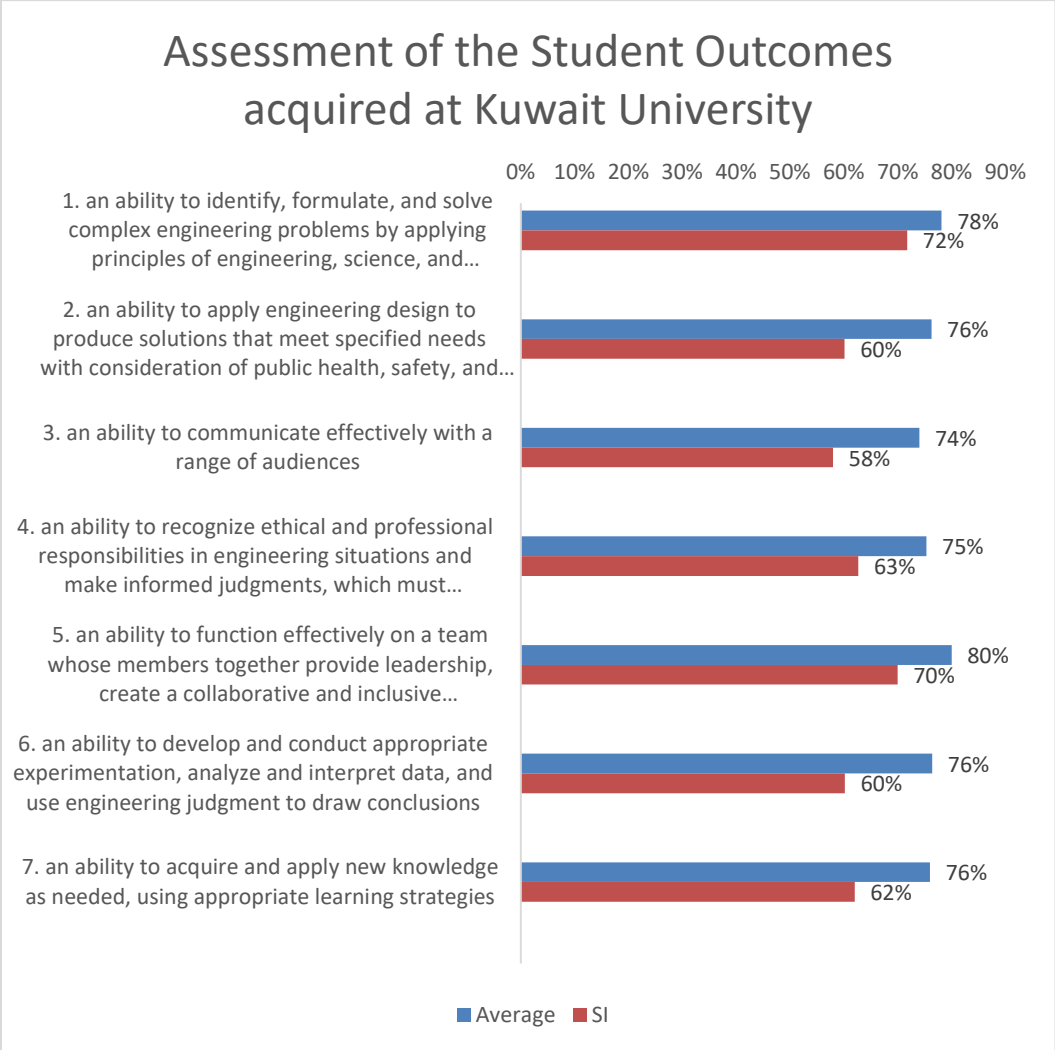


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	40	28	14	2	0	0	4.3	4
		48%	33%	17%	2%	0%	0%	86%	80%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	29	28	23	3	0	1	4	3.4
		35%	33%	27%	4%	0%	1%	80%	68%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	30	26	20	6	2	0	3.9	3.3
		36%	31%	24%	7%	2%	0%	78%	66%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	28	27	22	6	1	0	3.9	3.3
		33%	32%	26%	7%	1%	0%	78%	66%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	23	21	29	6	3	2	3.7	2.7
		27%	25%	35%	7%	4%	2%	74%	54%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	29	23	21	8	1	2	3.9	3.2
		35%	27%	25%	10%	1%	2%	78%	64%

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	27	20	21	9	7	0	3.6	2.8
		32%	24%	25%	11%	8%	0%	72%	56%
2	- Computers (Programming and usage of software packages)	17	25	30	9	2	1	3.6	2.5
		20%	30%	36%	11%	2%	1%	72%	50%
3	- Humanities and Social sciences	23	17	28	11	3	2	3.6	2.4
		27%	20%	33%	13%	4%	2%	72%	48%
4	- General Engineering	19	33	23	7	2	0	3.7	3.1
		23%	39%	27%	8%	2%	0%	74%	62%
5	- Engineering within major	28	31	17	4	2	2	4	3.6
		33%	37%	20%	5%	2%	2%	80%	72%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		25	22	24	10	3	0	3.7	2.8
		30%	26%	29%	12%	4%	0%	74%	56%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	20	26	23	10	5	0	3.5	2.7
		24%	31%	27%	12%	6%	0%	70%	54%
8	- Career planning	19	23	23	9	8	2	3.4	2.6
		23%	27%	27%	11%	10%	2%	68%	52%
D. Equity of treatment by:									
9	- Academic administrators	22	24	24	9	5	0	3.6	2.7
		26%	29%	29%	11%	6%	0%	72%	54%
10	- Faculty	20	23	29	7	5	0	3.5	2.6
		24%	27%	35%	8%	6%	0%	70%	52%
11	- Teaching assistants and engineers	23	24	27	5	5	0	3.7	2.8
		27%	29%	32%	6%	6%	0%	74%	56%
12	- Fellow students	25	20	25	9	2	3	3.7	2.8
		30%	24%	30%	11%	2%	4%	74%	56%
E. Quality of the facilities:									
13	- Classrooms	13	16	23	19	12	1	3	1.7
		15%	19%	27%	23%	14%	1%	60%	34%
14	- Science laboratories	19	14	17	18	14	2	3.1	2
		23%	17%	20%	21%	17%	2%	62%	40%
15	- Engineering Laboratories	19	13	22	18	11	1	3.1	1.9
		23%	15%	26%	21%	13%	1%	62%	38%
16	- Computing facilities	14	20	17	23	8	2	3.1	2.1
		17%	24%	20%	27%	10%	2%	62%	42%
17	- Libraries	21	11	26	17	8	1	3.2	1.9
		25%	13%	31%	20%	10%	1%	64%	38%

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	20	19	17	13	14	1	3.2	2.3	26	45	13
		24%	23%	20%	15%	17%	1%	64%	46%	31%	54%	15%
2	Training office	19	30	16	4	5	10	3.7	3.3	18	51	15
		23%	36%	19%	5%	6%	12%	74%	66%	21%	61%	18%
3	Libraries	19	25	21	9	4	6	3.6	2.8	26	42	16
		23%	30%	25%	11%	5%	7%	72%	56%	31%	50%	19%
4	Bookstores	15	26	22	6	5	10	3.5	2.8	22	45	17
		18%	31%	26%	7%	6%	12%	70%	56%	26%	54%	20%
B. Administrative Offices:												
5	Students affairs office in your department	16	30	14	7	8	9	3.5	3.1	19	43	22
		19%	36%	17%	8%	10%	11%	70%	62%	23%	51%	26%
6	Administrative offices in the college	12	27	21	8	7	9	3.4	2.6	21	45	18
		14%	32%	25%	10%	8%	11%	68%	52%	25%	54%	21%
C. Other Services:												
7	Health services	16	25	13	14	5	11	3.5	2.8	28	32	24
		19%	30%	15%	17%	6%	13%	70%	56%	33%	38%	29%
8	Food services	15	16	20	13	16	4	3	1.9	33	39	12
		18%	19%	24%	15%	19%	5%	60%	38%	39%	46%	14%
9	Parking	11	10	6	12	36	9	2.3	1.4	28	33	23
		13%	12%	7%	14%	43%	11%	46%	28%	33%	39%	27%
10	Recreation and athletics	12	13	15	12	21	11	2.8	1.7	28	29	27
		14%	15%	18%	14%	25%	13%	56%	34%	33%	35%	32%
11	Others	12	11	11	4	9	37	3.3	2.4	18	30	18
		14%	13%	13%	5%	11%	44%	66%	48%	21%	36%	21%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Leadership,programming
Solving problems Communication
Solving problems
Communicating with groups
-Time management. -Overcoming obstacles. -Commitment.
Oral presentations
Patience Work as a team Search for information perseverance
Patient
Share with members Get rid of shyness
Engineering sense
problem solving, organization, presenting idea's
Team work, technical writing, oral presentations, researching, time management and being organized.
Communication skills Design skills Problem solving
Team working and patience
Good
Communication
I learned how to talk with different people
Arranged time
How to contact with others
Patient, knowledge
working in groups
Working in group
Patience
Learning
communicating

Mathematics and engineering skills but we need to train in practical work
Improve skills
responsibility and cooperation
Good
responsibility
The c++ language and the matlab
patient
programing , design
Appreciation of time and schedule organization, hard work and commitment.
Work hard
No thing
Oral presentation
i can control my self in engieering problem and solve it in the same time.
group work
Leadership Softwares Team work
Analysis, Solving problems and finding alternative solution.
teamwork, communication, innovation and self-discipline
searching and writing reports
Matlab , visual basic , orcad, autocad, Excell.
Be patient
Precision
Reeed
Presentation and writing reports and programming
analytical thinking coding
Knowing the problem well
Work in groups.
Writing repors
Self learning

Self learning helping each other learn programming thinking independently

I learnt self-learning, had some experiences in programming using matlab, pspice, ads, power world and more. I also got to learn how to connect circuits using electrical components.

Self learning, ADS, Power world, etap, matlab,

Working in team

team work, leadership, working with malfunctions,time management and presentation skills

working in a group

no thing

Mathematics and engineering skills but we need to train in practical work

Team work and problem solving

communicate with other

Team work, confidence in presenting, how to study smart

patience

patient, group works, solving problems

Team work Time management

team work

.group work

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Practical skills are too low and weak at kuniv.

Testing problem at the lab

Applied methods in the real

Being creative

Programming as an electrical engineering student

More Design courses must be included in the major sheet

We cannot take one field in the major subject ,for example if i want my major be in the power field i cannot because only one or two doctors gives this courses so my major will not be what i need

More practical skills, career planning.

Tool for the projects

Good

How to get high GPA

Learning new languages

Practical things

Speaking fluently

Critical thinking

design and create

We need more practical work

Good

saving time

byforce , parking

Get involved more into technical practices within field, and else related.

I got everything learned

improve communicatiom skills with the audience.

Feild work New softwares

Practical training

Speaking english fluently

Search

Art skills

realization of the theories any sport skills

Do more projects

More practical application.

Working at library

Written reports

Nothing maybe more communicating with the doctor

I did not get the chance to take microwave lab to learn how to apply it in real life. I also wanted to improve my presentation skills more.

Presentation skills,

Hgggghgggghgghghg ghghghghghhgh hghgghghhgg

Nothing ,every thing available

basic programming on various devices, how to apply for jobs.

writing reports

We need more practical work

Basic programs live MATLAB are poorly introduced

practical application of what we have studied

To teach us how to work practical more

good memory

having fun

more practical side

Apllied engineering

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary)

Add more practical courses

Decrease the number of students in each class

Parking please

provide more space for the practical work.

More parking lots are required so that the students can consitrate and not be late for their classes

Increased use of technology

Give the students a confidence to extract their talents

Need Some respect

Teach us how to apply all what we have learned in our careers, not just in books but in real life.

Good

Make the "By force" more easier please

By force problems & parking problems

TAs how is responsible of 497 groups must be more than 3 or 4 especially in electrical department

Increasing the number of newly graduated doctors

Open more sections

Work on improving laboratories so students can run and design their project better

We need excellent university doctors

make the student more practically

Make more time for office hours

more workshops, please

more workshops

Connect the theoretical side with the practical

Appreciation of very good professors, and encouragement of the appointment of new ones of high educational standards, and dedication at work.

thank you for all academic program at kuwait university.

More oral presentation More project

More labs and practical side

Providing the library with variety of books "new additions books" Spending more time in researching rather than solving repeated 10 problems in a single hw Treat students as future engineers not as some high school students Providing the classrooms with cameras for a real evaluation

Learn more how to implement the study in real life.

The classrooms and laboratories should prepared in more effective ways

No parking

I think there should be more labs with more advanced equipments to teach the students.

Classrooms, laboratory

Focus on teaching from the book

better class rooms and clearer boards, better evaluation of the teachers ability to get the information across to students, a friendlier and enjoyable environment to get students excited and out of the regular stress

teaching all of the major courses in practical way

Number of classes less than number of student , parking

please BUILD new parking spaces

encourage and honor the demand for their scientific achievements

To improve the devices in the laboratories

more teachers

having more practical courses

More expo

Industrial and Management Systems
Engineering Program Exit Survey Results

Fall Semester2018 – 2019

February 2019

INDUSTRIAL & MANAGEMENT SYSTEMS ENGINEERING MISSION & VISION

Mission

The ***mission*** of the Industrial and Management Systems Engineering Program is to graduate competent students with capability to work in leading local and international organizations and potential for lifelong learning; and to provide the faculty with the required resources and environment to excel in teaching, research, and community service.

Vision

The vision of the program is to be recognized as a leading educational institution in Industrial and Management Systems Engineering in the region; attracting high-caliber students and faculty members.

To satisfy the *Mission* and *Vision* of the Department and to meet the needs of its constituents, three *Educational Objectives* have been adopted after consulting with faculty, employer representatives, and studying ABET models of leading educational institutions. In addition, a set of *Student Outcomes* are developed.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The graduates of the IMSE program will:

1. Be engaged in careers in a broad range of Industrial and Management Systems Engineering areas, or successfully pursue advanced studies.
2. Occupy leadership roles, and engaged in continuous professional development in response to technological and social challenges.
3. Have contributed to the welfare of society and the development of the profession through active participation in societal and/or professional activities.

Student Outcomes

Achievement of the following student outcomes would indicate that the graduates are equipped with the necessary knowledge and skills to achieve the program educational objectives.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Industrial and Management Systems Engineering**

*** Number of Students participated in the survey:**

24	Male	0	0%
	Female	24	100%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	17	71%
Intend to work in the private sector.	14	58%
Intend to go to graduate school.	4	17%
Intend to start my own business	5	21%
Intend to do other things	3	13%
oil sector		
Volunteering / part job		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	7	9	8	0	0	0	4	3.3
		29%	38%	33%	0%	0%	0%	80%	66%
2	Design and conduct experiments, as well as to analyze and interpret data.	7	11	6	0	0	0	4	3.8
		29%	46%	25%	0%	0%	0%	80%	76%
3	Design a system, component, or process to meet desired needs.	7	8	8	1	0	0	3.9	3.1
		29%	33%	33%	4%	0%	0%	78%	62%
4	Function effectively in teams.	13	9	1	1	0	0	4.4	4.6
		54%	38%	4%	4%	0%	0%	88%	92%
5	Identify, formulate, and solve engineering problems.	7	13	4	0	0	0	4.1	4.2
		29%	54%	17%	0%	0%	0%	82%	84%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	12	7	5	0	0	0	4.3	4
		50%	29%	21%	0%	0%	0%	86%	80%
7	Communicate effectively (written reports).	13	6	5	0	0	0	4.3	4
		54%	25%	21%	0%	0%	0%	86%	80%
8	Communicate effectively (oral presentations).	5	14	4	1	0	0	4	4
		21%	58%	17%	4%	0%	0%	80%	80%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	8	11	4	0	1	0	4	4
		33%	46%	17%	0%	4%	0%	80%	80%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	13	5	5	1	0	0	4.3	3.8
		54%	21%	21%	4%	0%	0%	86%	76%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc)	5	9	6	4	0	0	3.6	2.9
		21%	38%	25%	17%	0%	0%	72%	58%
12	Ability to use computing technology in communications.	6	9	9	0	0	0	3.9	3.1
		25%	38%	38%	0%	0%	0%	78%	62%
13	Ability to use computing technology in engineering analysis/design.	5	12	7	0	0	0	3.9	3.5
		21%	50%	29%	0%	0%	0%	78%	70%
14	Ability to use state of the art techniques, and tools in engineering practice.	8	10	5	1	0	0	4	3.8
		33%	42%	21%	4%	0%	0%	80%	76%
15	Apply the knowledge of probability and statistics.	10	8	6	0	0	0	4.2	3.8
		42%	33%	25%	0%	0%	0%	84%	76%
16	A competency to apply Industrial and Management Systems Engineering techniques and tools in divers types of organizations with focus on quality engineering and management, productivity and logistics, ergonomics and safety, and engineering economical decisions.	13	8	3	0	0	0	4.4	4.4
		54%	33%	13%	0%	0%	0%	88%	88%

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.1 81%	3.8 76%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.9 78%	3.2 63%
3	an ability to communicate effectively with a range of audiences	4.2 83%	4.0 80%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.9 79%	3.4 68%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.4 88%	4.6 92%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.9 78%	3.2 64%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.3 86%	3.8 76%

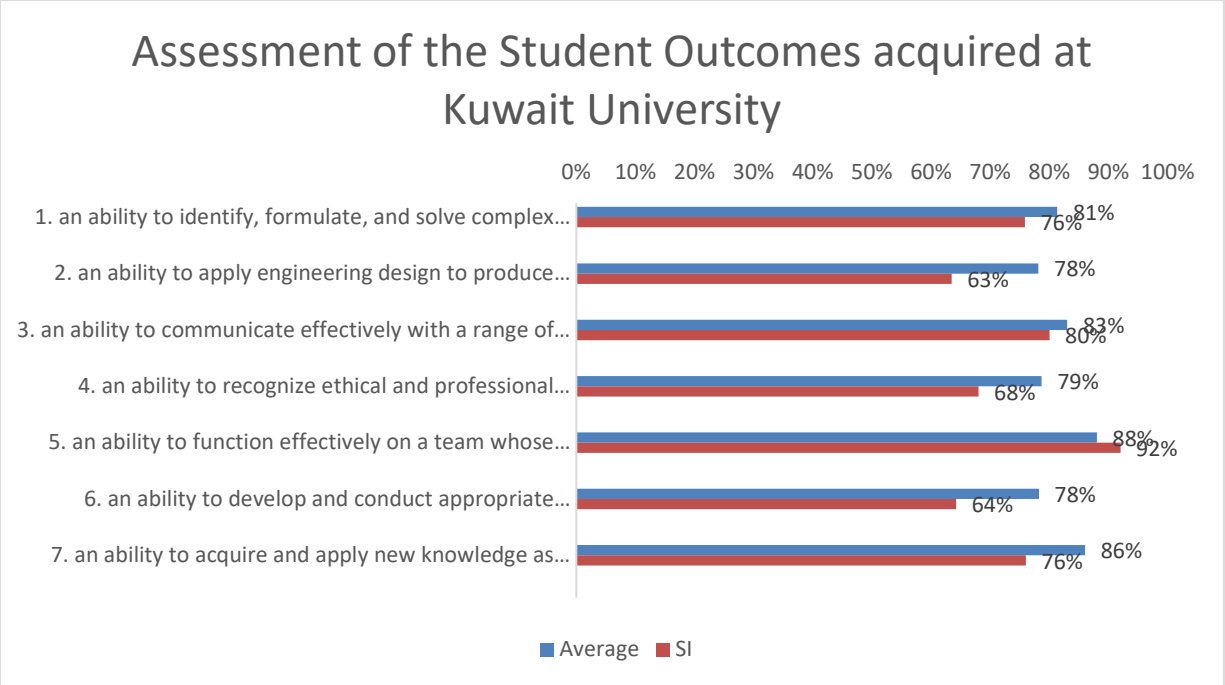


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	14	7	3	0	0	0	4.5	4.4
		58%	29%	13%	0%	0%	0%	90%	88%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	10	7	6	1	0	0	4.1	3.5
		42%	29%	25%	4%	0%	0%	82%	70%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	11	5	3	5	0	0	3.9	3.3
		46%	21%	13%	21%	0%	0%	78%	66%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	8	12	3	1	0	0	4.1	4.2
		33%	50%	13%	4%	0%	0%	82%	84%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	9	7	5	3	0	0	3.9	3.3
		38%	29%	21%	13%	0%	0%	78%	66%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	10	9	4	1	0	0	4.2	4
		42%	38%	17%	4%	0%	0%	84%	80%

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	8	5	5	6	0	0	3.6	2.7
		33%	21%	21%	25%	0%	0%	72%	54%
2	- Computers (Programming and usage of software packages)	6	8	7	2	1	0	3.7	2.9
		25%	33%	29%	8%	4%	0%	74%	58%
3	- Humanities and Social sciences	9	6	9	0	0	0	4	3.1
		38%	25%	38%	0%	0%	0%	80%	62%
4	- General Engineering	8	11	4	1	0	0	4.1	4
		33%	46%	17%	4%	0%	0%	82%	80%
5	- Engineering within major	15	5	4	0	0	0	4.5	4.2
		63%	21%	17%	0%	0%	0%	90%	84%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		7	8	6	1	2	0	3.7	3.1
		29%	33%	25%	4%	8%	0%	74%	62%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	5	3	4	1	0	5	3.9	3.1
		28%	17%	22%	6%	0%	28%	78%	62%
8	- Career planning	5	2	7	1	1	2	3.6	2.2
		28%	11%	39%	6%	6%	11%	72%	44%
D. Equity of treatment by:									
9	- Academic administrators	8	10	5	0	0	1	4.1	3.9
		33%	42%	21%	0%	0%	4%	82%	78%
10	- Faculty	8	2	10	4	0	0	3.6	2.1
		33%	8%	42%	17%	0%	0%	72%	42%
11	- Teaching assistants and engineers	7	5	4	5	3	0	3.3	2.5
		29%	21%	17%	21%	13%	0%	66%	50%
12	- Fellow students	7	6	9	2	0	0	3.8	2.7
		29%	25%	38%	8%	0%	0%	76%	54%
E. Quality of the facilities:									
13	- Classrooms	7	1	6	6	4	0	3	1.7
		29%	4%	25%	25%	17%	0%	60%	34%
14	- Science laboratories	3	5	10	5	1	0	3.2	1.7
		13%	21%	42%	21%	4%	0%	64%	34%
15	- Engineering Laboratories	3	4	11	3	3	0	3	1.5
		13%	17%	46%	13%	13%	0%	60%	30%
16	- Computing facilities	3	5	9	5	1	1	3.2	1.7
		13%	21%	38%	21%	4%	4%	64%	34%
17	- Libraries	5	7	6	4	2	0	3.4	2.5
		21%	29%	25%	17%	8%	0%	68%	50%

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	6	3	5	6	4	0	3	1.9	15	8	1
		25%	13%	21%	25%	17%	0%	60%	38%	63%	33%	4%
2	Training office	6	6	4	6	0	2	3.5	2.7	10	12	2
		25%	25%	17%	25%	0%	8%	70%	54%	42%	50%	8%
3	Libraries	8	9	2	1	1	3	4	4	14	8	2
		33%	38%	8%	4%	4%	13%	80%	80%	58%	33%	8%
4	Bookstores	6	5	6	1	0	6	3.9	3.1	10	9	5
		25%	21%	25%	4%	0%	25%	78%	62%	42%	38%	21%
B. Administrative Offices:												
5	Students affairs office in your department	7	7	5	4	0	1	3.7	3	14	6	4
		29%	29%	21%	17%	0%	4%	74%	60%	58%	25%	17%
6	Administrative offices in the college	9	7	4	4	0	0	3.9	3.3	12	11	1
		38%	29%	17%	17%	0%	0%	78%	66%	50%	46%	4%
C. Other Services:												
7	Health services	5	7	3	2	4	3	3.3	2.9	9	7	8
		21%	29%	13%	8%	17%	13%	66%	58%	38%	29%	33%
8	Food services	6	6	3	4	5	0	3.2	2.5	15	8	1
		25%	25%	13%	17%	21%	0%	64%	50%	63%	33%	4%
9	Parking	2	2	2	2	15	1	1.9	0.9	14	8	2
		8%	8%	8%	8%	63%	4%	38%	18%	58%	33%	8%
10	Recreation and athletics	2	2	4	5	5	6	2.5	1.1	9	5	10
		8%	8%	17%	21%	21%	25%	50%	22%	38%	21%	42%
11	Others	2	2	4	2	4	10	2.7	1.4	7	7	4
		8%	8%	17%	8%	17%	42%	54%	28%	29%	29%	17%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

How to think to solve engineer problems Communication skills

team spirit, commitment of change and technical thinking

Improved my skills

1- operation research skills 2- application of costs analysis 3- projects management and engineering 4- safety principles 5- leadership skills

easy exam

Problem solving skills as well as improving and enhancing the quality of systems, also communications skills and teamwork.

Analytical skills Good communications and teamwork

improved the quality minimize the cost control inventory group wok

Written report and presentation skills

Leadrship-communication-research

Written report and presentation skills

Analyze and more controlling

team work - working under pressure - patience

good communication , self-reliance

responsibility

Responsibility, teamwork

Time management

how to think logically how to communicate better through facts

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

How to work better in real life

leadership, creativity and advancement

Have no time to do other activities in the university

1-A lake of trips as an application of the studied methods 2- using more professional programs in labs since the department always faces limited license

I believe that all the important skills needed are taught in Kuwait university
Learning in training course
computer skills
Training courses
No skills
advanced software courses like minitab and GIS
apply the study to the real work
self assessment

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

More factually members in industrial engineer department
ease in registering processes, availability of options in courses provided for the students, willing to develop and participate in a students success career wise, explain the path of a graduate and enhance the campus building wise
Try to help students to improve their hobbies
Industrial and management system department faces a lake of professors and shortage in courses availability and as a general point the university has to apply more training course insted of depends on the tradition exams and quizzes
easy exam
Making the importance of the application of the knowledge we learn in classes more than just examinations.
i would like to see improvement in technology system
Aware people about what industrial engineering and what IE actually do and where they fit .
Chosing the topic of the senior project before starting the course.
There should be training courses related to the student's specialization
Aware people about what industrial engineering and what IE actually do and where they fit .
Keeping all programs online
There should be more workshops and courses regarding the softwares to prepare the engineer for real life career
link between study and application
more electives
renew some of the facilities and laboratories
better sections availability

Mechanical Engineering Program
Exit Survey Results

Fall Semester 2018 - 2019

February 2019

MECHANICAL ENGINEERING MISSION & VISION

Mission

The ***mission*** of the Department is to provide a quality and broad engineering education, to conduct strong basic and applied research, and to serve the industry, the profession and the community at large through innovative solutions, dissemination of knowledge, and advancement of science and technology.

Vision

The ***vision*** of the Department is to gain regional and international recognition for providing a quality engineering education, outstanding research programs and exceptional community service. In addition, it is envisioned that the graduates of the Program will be successful in their professional careers and/or graduate studies, prepared for professional creativity and leadership, and lead productive lives that contribute to improvement of society.

Educational objectives and student outcomes

Educational Objectives:

The graduates of the ME program will:

4. Engage in productive careers in a broad range of mechanical engineering areas in public and private sectors in Kuwait, or successfully pursue advanced studies and careers in academia or in other research environments
5. Advance in responsibility and leadership in their careers, and engage in continuous professional development to respond to rapidly evolving technological and social challenges
6. Contribute to the welfare of society and the development of the profession through responsible practice of engineering and involvement in professional organizations.

Student Outcomes

The ME program graduates will have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences

4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies..

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Mechanical Engineering**

*** Number of Students participated in the survey:**

44	Male	6	14%
	Female	36	82%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	28	64%
Intend to work in the private sector.	27	61%
Intend to go to graduate school.	8	18%
Intend to start my own business	13	30%
Intend to do other things	3	7%
continue studying		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	14	15	12	1	0	2	4	3.5
		32%	34%	27%	2%	0%	5%	80%	70%
2	Design and conduct experiments, as well as to analyze and interpret data.	11	17	11	3	0	2	3.9	3.3
		25%	39%	25%	7%	0%	5%	78%	66%
3	Design a system, component, or process to meet desired needs.	11	12	16	2	1	2	3.7	2.7
		25%	27%	36%	5%	2%	5%	74%	54%
4	Function effectively in teams.	16	9	14	2	1	2	3.9	3
		36%	20%	32%	5%	2%	5%	78%	60%
5	Identify, formulate, and solve engineering problems.	10	18	14	0	0	2	3.9	3.3
		23%	41%	32%	0%	0%	5%	78%	66%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	14	14	9	3	2	2	3.8	3.3
		32%	32%	20%	7%	5%	5%	76%	66%
7	Communicate effectively (written reports).	18	14	9	0	1	2	4.1	3.8
		41%	32%	20%	0%	2%	5%	82%	76%
8	Communicate effectively (oral presentations).	12	11	16	2	1	2	3.7	2.7
		27%	25%	36%	5%	2%	5%	74%	54%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	15	12	13	2	0	2	4	3.2
		34%	27%	30%	5%	0%	5%	80%	64%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	13	11	16	1	1	2	3.8	2.9
		30%	25%	36%	2%	2%	5%	76%	58%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	10	11	16	4	1	2	3.6	2.5
		23%	25%	36%	9%	2%	5%	72%	50%
12	Ability to use computing technology in communications.	14	15	11	2	0	2	4	3.5
		32%	34%	25%	5%	0%	5%	80%	70%
13	Ability to use computing technology in engineering analysis/design.	12	13	17	0	0	2	3.9	3
		27%	30%	39%	0%	0%	5%	78%	60%
14	Ability to use state of the art techniques, and tools in engineering practice.	9	16	14	2	0	3	3.8	3
		20%	36%	32%	5%	0%	7%	76%	60%
15	Apply the knowledge of probability and statistics.	9	12	15	4	1	3	3.6	2.6
		20%	27%	34%	9%	2%	7%	72%	52%
16	An ability to assume responsibility at an entry level in the areas of Mechanical Engineering that are important to Kuwait and the region, such as the design, analysis and maintenance of machinery, refrigeration, air-conditioning and desalination systems.	10	12	16	2	0	4	3.8	2.8
		23%	27%	36%	5%	0%	9%	76%	56%

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 77%	3.2 63%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.7 75%	2.8 56%
3	an ability to communicate effectively with a range of audiences	3.9 78%	3.3 65%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	3.8 75%	3.0 61%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	3.9 78%	3.0 60%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 75%	2.8 57%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	2.9 58%

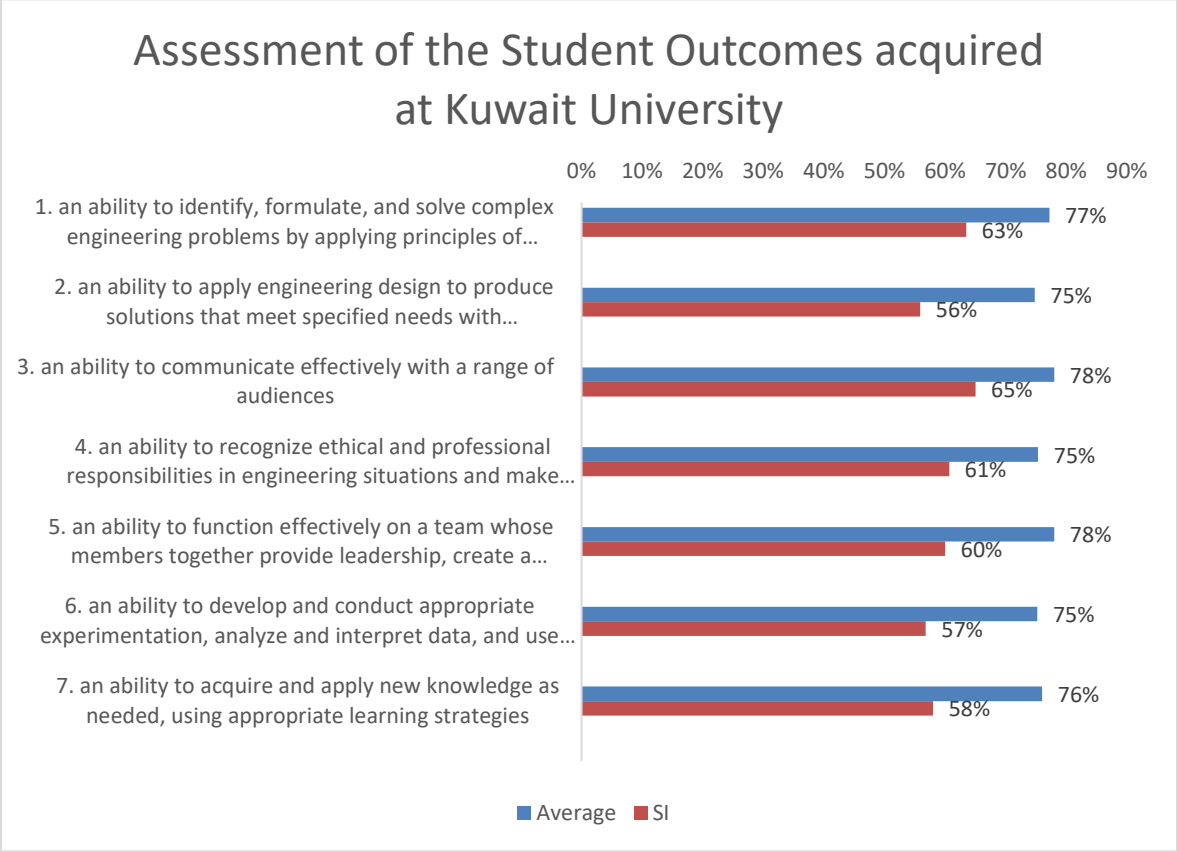


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	18	11	13	0	0	2	4.1	**3.5**
		41%	25%	30%	0%	0%	5%	82%	**70%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	14	16	12	0	0	2	4	**3.6**
		32%	36%	27%	0%	0%	5%	80%	**72%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	13	9	17	2	0	3	3.8	**2.7**
		30%	20%	39%	5%	0%	7%	76%	**54%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	12	11	12	5	2	2	3.6	**2.7**
		27%	25%	27%	11%	5%	5%	72%	**54%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	10	11	16	3	2	2	3.6	**2.5**
		23%	25%	36%	7%	5%	5%	72%	**50%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	13	8	16	2	1	4	3.8	**2.6**
		30%	18%	36%	5%	2%	9%	76%	**52%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	12	7	15	5	3	2	3.5	2.3
		27%	16%	34%	11%	7%	5%	70%	46%
2	- Computers (Programming and usage of software packages)	10	8	16	3	4	3	3.4	2.2
		23%	18%	36%	7%	9%	7%	68%	44%
3	- Humanities and Social sciences	9	11	15	2	3	4	3.5	2.5
		20%	25%	34%	5%	7%	9%	70%	50%
4	- General Engineering	8	14	17	2	1	2	3.6	2.6
		18%	32%	39%	5%	2%	5%	72%	52%
5	- Engineering within major	15	11	14	2	0	2	3.9	3.1
		34%	25%	32%	5%	0%	5%	78%	62%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		11	6	13	8	0	6	3.5	2.2
		25%	14%	30%	18%	0%	14%	70%	44%
C. Quality of advice by the staff with respect to:									
7	- Academic planning	9	11	14	4	2	4	3.5	2.5
		20%	25%	32%	9%	5%	9%	70%	50%
8	- Career planning	8	10	15	6	2	3	3.4	2.2
		18%	23%	34%	14%	5%	7%	68%	44%
D. Equity of treatment by:									
9	- Academic administrators	10	6	14	7	2	5	3.4	2.1
		23%	14%	32%	16%	5%	11%	68%	42%
10	- Faculty	10	9	14	5	3	3	3.4	2.3
		23%	20%	32%	11%	7%	7%	68%	46%
11	- Teaching assistants and engineers	14	11	14	3	0	2	3.9	3
		32%	25%	32%	7%	0%	5%	78%	60%
12	- Fellow students	12	10	12	4	3	3	3.6	2.7
		27%	23%	27%	9%	7%	7%	72%	54%
E. Quality of the facilities:									
13	- Classrooms	7	8	9	10	8	2	2.9	1.8
		16%	18%	20%	23%	18%	5%	58%	36%
14	- Science laboratories	3	8	9	11	11	2	2.5	1.3
		7%	18%	20%	25%	25%	5%	50%	26%
15	- Engineering Laboratories	3	9	12	5	12	3	2.7	1.5
		7%	20%	27%	11%	27%	7%	54%	30%
16	- Computing facilities	5	6	12	7	11	3	2.7	1.3
		11%	14%	27%	16%	25%	7%	54%	26%
17	- Libraries	7	8	11	9	4	5	3.1	1.9
		16%	18%	25%	20%	9%	11%	62%	38%

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	8	12	10	4	4	6	3.4	2.6	16	20	6
		18%	27%	23%	9%	9%	14%	68%	52%	36%	45%	14%
2	Training office	7	13	11	5	0	8	3.6	2.8	8	23	11
		16%	30%	25%	11%	0%	18%	72%	56%	18%	52%	25%
3	Libraries	7	15	9	5	2	6	3.5	2.9	13	21	8
		16%	34%	20%	11%	5%	14%	70%	58%	30%	48%	18%
4	Bookstores	6	15	10	4	3	6	3.4	2.8	14	22	6
		14%	34%	23%	9%	7%	14%	68%	56%	32%	50%	14%
B. Administrative Offices:												
5	Students affairs office in your department	8	20	7	4	0	5	3.8	3.6	12	26	4
		18%	45%	16%	9%	0%	11%	76%	72%	27%	59%	9%
6	Administrative offices in the college	6	17	9	3	1	8	3.7	3.2	11	23	8
		14%	39%	20%	7%	2%	18%	74%	64%	25%	52%	18%
C. Other Services:												
7	Health services	6	12	7	3	4	12	3.4	2.8	9	24	9
		14%	27%	16%	7%	9%	27%	68%	56%	20%	55%	20%
8	Food services	9	10	8	6	6	5	3.3	2.4	16	23	3
		20%	23%	18%	14%	14%	11%	66%	48%	36%	52%	7%
9	Parking	4	5	1	4	24	6	2	1.2	16	19	7
		9%	11%	2%	9%	55%	14%	40%	24%	36%	43%	16%
10	Recreation and athletics	5	8	1	3	12	15	2.7	2.2	8	19	15
		11%	18%	2%	7%	27%	34%	54%	44%	18%	43%	34%
11	Others	5	1	1	4	2	31	3.2	2.3	7	16	8
		11%	2%	2%	9%	5%	70%	64%	46%	16%	36%	18%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

I became sociable. I appreciated science more. I can endure responsibilities now.

Good work with the teams.

Group work and report writing

Teamwork

Team work is vital. Confidence is key.

using Auto cad and MATLAB

how to work hard

Team work , functioning under stress , analytical thinking

Witting, reading, self learning and knowledge

Leadership and teamwork

thinking

Researching

Responsibility, self dependent, team work.

I learned how to deal with problems and try to solve it.

I learned to look at a problem with a unique perspective that helps solve it in a manner unique to engineering students.

self-reliance

How to search , work in a group and achieving goals.

teamwork

Teamwork and analytical thinking

Teamwork

patient and work with groups

.

Team work , respect my group when have problems & how to solve it together

Oral presentation

work in team, how to use and apply the knowledge in real, practical life.

critical thinking, problem solving, report writing, team leadership, CAD modeling, coding

Team work ,engineering sence

Teamwork

design

AutoCAD writing reports

Solving problems

Antisocial that's pretty much it

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

I didn't get the chance to be professional in presentations and that is a problem !!!

A class in the field of biomechanics

Financial my project

Presentation skills should be a priority.

subject that learned matlab

knowing some practical application more than studying theoretical application

Art and sport activities, student exchange, helping in research

Presentation

career planning

sports

Prepare student for career.

Presentation skills.

More computer program tools and skills

learning presentation

How to write a CV and looking for job opportunities.

available

How to calculate the cost!

Computer aided engineering

research, presentations

programming skills

Learning to talk in English well

program

Using of engineering programs

Proper labs to do updated experiments

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

I think students need special courses to improve their skills in both languages (English&Arabic). I think professors and doctors need to be fair with students and focus on their work and don't compare them to each other. If they get a low grade that doesn't mean that their IQ level is low, everyone has a story and circumstances!!!!! Professors should be focusing on educating and be more fluid with talking to students and don't challenge them!!!!

More real life applications of the studied aspects

More time for senior project

Computer aided engineering should be more looked into.

improve the labs improve the classes

Too late to suggest

Changing the laboratory and the equipment in the lab and changing the computers

more parking to save time

Prepare student for career.

Doctors or engineers should give the students classes to help them in many usedul programmes such as MATLAb, also presentation skills must be teached.

Put more weight on projects and increase the amounts of projects or papers compared to tests and exams

I hope the doctors will be more flexible

must be more efficient

it should be taken in one year, one semester is not enough.

there should be more presentations, the way the exams are made is not really fair for smart students or if the student went in depth, its vague and very systimatic. i also think that all the classes of the same subject must be unified.

professors should stop writing down on the black board and forcing the students to take down notes. Students should rather spend their time in class concentrating on what is being explained to grab the most out of it. and notes should be provided or be fully covered by a textbook. Anything explained in class must have a reference.

Try to hire more doctors to improve the education for students

the exams

Increase field trips

I think the academic program is fine the university facilities need to be improved on the other hand

Petroleum Engineering Program

Exit Survey Results

Fall Semester 2018-2019

February 2019

PETROLEUM ENGINEERING MISSION & VISION

Mission

To provide a modern petroleum engineering education with proper balance between theory and practice and to graduate petroleum engineers prepared for life-long learning and capable of being productive contributors for the oil and gas industry

Vision

To be a world-class provider of education and research for the oil and gas industry, to play a leadership role in providing new technologies in order to increase the petroleum reserves of Kuwait.

EDUCATIONAL OBJECTIVES AND STUDENT OUTCOMES

Educational Objectives:

The Petroleum Engineering Department at Kuwait University is dedicated to graduating Petroleum Engineers who will:

1. Engage in productive careers in petroleum engineering in public or private sectors, or successfully pursue graduate studies and careers in academia or research centers.
2. Advance in responsibility and leadership in their careers, and participate in continuous professional development to meet the challenges of rapidly emerging technology.
3. Contribute to the welfare of the society and the environment and the development of the profession through responsible practice of petroleum engineering and participation in professional activities and organizations.

Student Outcomes

Petroleum Engineering Student Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ABET (2019-2020) Definitions

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies..

Student Outcomes – Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to skills, knowledge, and behaviors that students acquire as they progress through the program.

Survey Statistics:

*** Major: Petroleum Engineering**

*** Number of Students participated in the survey:**

20	Male	0	0%
	Female	20	100%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	11	55%
Intend to work in the private sector.	14	70%
Intend to go to graduate school.	4	20%
Intend to start my own business	2	10%
Intend to do other things	0	0%

Table 1 shows students' feedback for the first group of questions in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome Attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	8	7	4	1	0	0	4.1	3.8
		40%	35%	20%	5%	0%	0%	82%	76%
2	Design and conduct experiments, as well as to analyze and interpret data.	7	9	4	0	0	0	4.2	4
		35%	45%	20%	0%	0%	0%	84%	80%
3	Design a system, component, or process to meet desired needs.	6	8	3	2	1	0	3.8	3.5
		30%	40%	15%	10%	5%	0%	76%	70%
4	Function effectively in teams.	7	9	4	0	0	0	4.2	4
		35%	45%	20%	0%	0%	0%	84%	80%
5	Identify, formulate, and solve engineering problems.	5	10	5	0	0	0	4	3.8
		25%	50%	25%	0%	0%	0%	80%	76%
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	10	6	3	1	0	0	4.3	4
		50%	30%	15%	5%	0%	0%	86%	80%
7	Communicate effectively (written reports).	5	11	4	0	0	0	4.1	4
		25%	55%	20%	0%	0%	0%	82%	80%
8	Communicate effectively (oral presentations).	8	7	5	0	0	0	4.2	3.8
		40%	35%	25%	0%	0%	0%	84%	76%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	4	9	7	0	0	0	3.9	3.3
		20%	45%	35%	0%	0%	0%	78%	66%
10	Be aware of the need for, and improved my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	5	10	5	0	0	0	4	3.8
		25%	50%	25%	0%	0%	0%	80%	76%
11	Be aware of contemporary issues(e.g. economics of engineering, environmental issues, etc.)	5	8	6	0	1	0	3.8	3.3
		25%	40%	30%	0%	5%	0%	76%	66%
12	Ability to use computing technology in communications.	5	9	5	1	0	0	3.9	3.5
		25%	45%	25%	5%	0%	0%	78%	70%
13	Ability to use computing technology in engineering analysis/design.	5	9	6	0	0	0	4	3.5
		25%	45%	30%	0%	0%	0%	80%	70%
14	Ability to use state of the art techniques, and tools in engineering practice.	6	6	6	2	0	0	3.8	3
		30%	30%	30%	10%	0%	0%	76%	60%
15	Apply the knowledge of probability and statistics.	1	13	5	1	0	0	3.7	3.5
		5%	65%	25%	5%	0%	0%	74%	70%

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 79%	3.6 73%
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	3.8 76%	3.5 69%
3	an ability to communicate effectively with a range of audiences	4.2 83%	3.9 78%
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	4.0 80%	3.5 71%
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	4.2 84%	4.0 80%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 77%	3.5 69%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4 80%	3.8 76%

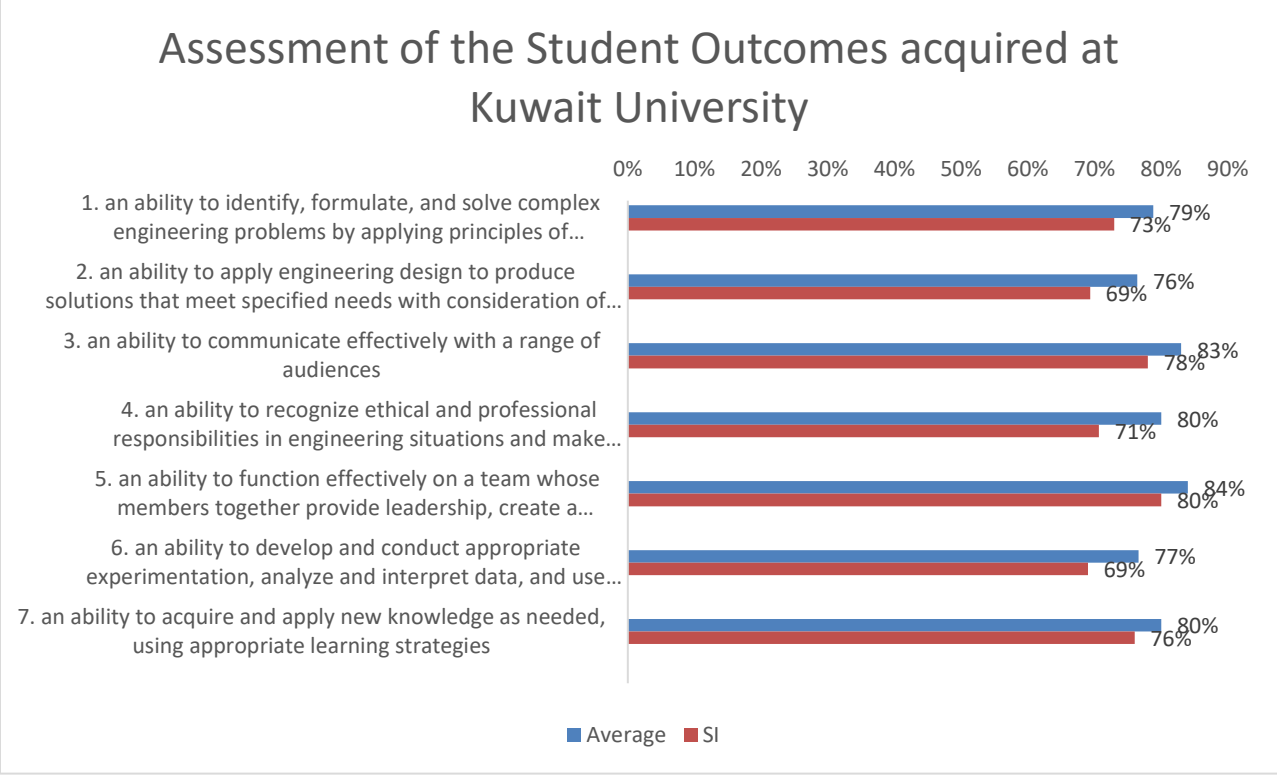


Table 3 Assessment of relevance of Program Educational Objectives

#	Objectives	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	5	10	5	0	0	0	4	3.8
		25%	50%	25%	0%	0%	0%	80%	76%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	2	11	6	1	0	0	3.7	3.3
		10%	55%	30%	5%	0%	0%	74%	66%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	5	9	6	0	0	0	4	3.5
		25%	45%	30%	0%	0%	0%	80%	70%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	2	10	7	1	0	0	3.7	3
		10%	50%	35%	5%	0%	0%	74%	60%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	4	10	6	0	0	0	3.9	3.5
		20%	50%	30%	0%	0%	0%	78%	70%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	7	5	7	1	0	0	3.9	3
		35%	25%	35%	5%	0%	0%	78%	60%

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	6	6	6	2	0	0	3.8	3
		30%	30%	30%	10%	0%	0%	76%	60%
2	- Computers (Programming and usage of software packages)	4	6	7	3	0	0	3.6	2.5
		20%	30%	35%	15%	0%	0%	72%	50%
3	- Humanities and Social sciences	2	9	7	1	0	1	3.6	2.9
		10%	45%	35%	5%	0%	5%	72%	58%
4	- General Engineering	6	6	7	0	1	0	3.8	3
		30%	30%	35%	0%	5%	0%	76%	60%
5	- Engineering within major	5	8	7	0	0	0	3.9	3.3
		25%	40%	35%	0%	0%	0%	78%	66%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		4	8	4	4	0	0	3.6	3
		20%	40%	20%	20%	0%	0%	72%	60%
C. Quality of advise by the staff with respect to:									
7	- Academic planning	5	8	5	1	1	0	3.8	3.3
		25%	40%	25%	5%	5%	0%	76%	66%
8	- Career planning	2	8	6	3	1	0	3.4	2.5
		10%	40%	30%	15%	5%	0%	68%	50%
D. Equity of treatment by:									
9	- Academic administrators	4	9	2	5	0	0	3.6	3.3
		20%	45%	10%	25%	0%	0%	72%	66%
10	- Faculty	1	7	7	5	0	0	3.2	2
		5%	35%	35%	25%	0%	0%	64%	40%
11	- Teaching assistants and engineers	3	8	7	2	0	0	3.6	2.8
		15%	40%	35%	10%	0%	0%	72%	56%
12	- Fellow students	2	6	7	5	0	0	3.3	2
		10%	30%	35%	25%	0%	0%	66%	40%
E. Quality of the facilities:									
13	- Classrooms	3	8	4	3	2	0	3.4	2.8
		15%	40%	20%	15%	10%	0%	68%	56%
14	- Science laboratories	2	6	8	3	1	0	3.3	2
		10%	30%	40%	15%	5%	0%	66%	40%
15	- Engineering Laboratories	2	4	10	3	1	0	3.2	1.5
		10%	20%	50%	15%	5%	0%	64%	30%
16	- Computing facilities	3	8	7	1	1	0	3.6	2.8
		15%	40%	35%	5%	5%	0%	72%	56%
17	- Libraries	3	8	8	1	0	0	3.7	2.8
		15%	40%	40%	5%	0%	0%	74%	56%

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	5	7	3	2	3	0	3.5	3	9	9	2
		25%	35%	15%	10%	15%	0%	70%	60%	45%	45%	10%
2	Training office	5	6	6	3	0	0	3.7	2.8	8	11	1
		25%	30%	30%	15%	0%	0%	74%	56%	40%	55%	5%
3	Libraries	3	10	4	2	0	1	3.7	3.4	9	10	1
		15%	50%	20%	10%	0%	5%	74%	68%	45%	50%	5%
4	Bookstores	2	10	4	0	1	3	3.7	3.5	7	11	2
		10%	50%	20%	0%	5%	15%	74%	70%	35%	55%	10%
B. Administrative Offices:												
5	Students affairs office in your department	3	12	4	1	0	0	3.9	3.8	4	15	1
		15%	60%	20%	5%	0%	0%	78%	76%	20%	75%	5%
6	Administrative offices in the college	3	12	4	1	0	0	3.9	3.8	5	13	2
		15%	60%	20%	5%	0%	0%	78%	76%	25%	65%	10%
C. Other Services:												
7	Health services	4	8	5	1	2	0	3.6	3	4	11	5
		20%	40%	25%	5%	10%	0%	72%	60%	20%	55%	25%
8	Food services	3	7	5	2	3	0	3.3	2.5	8	9	3
		15%	35%	25%	10%	15%	0%	66%	50%	40%	45%	15%
9	Parking	2	5	3	2	8	0	2.6	1.8	11	5	4
		10%	25%	15%	10%	40%	0%	52%	36%	55%	25%	20%
10	Recreation and athletics	3	5	4	4	1	3	3.3	2.4	4	11	5
		15%	25%	20%	20%	5%	15%	66%	48%	20%	55%	25%
11	Others	0	6	2	0	1	11	3.4	3.3	4	6	3
		0%	30%	10%	0%	5%	55%	68%				

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Ability to work under pressure

Good

Communication

Study hard. Working as a team. Helping other students.

Discipline

The group work , communication with others , and the oral presentation.

communication

patience-time management

working under pressure

Thinking deeply

Communication with others and take the constractive criticism in improving my self.

Leadership

Presentations

Improve memory and language skills

Leader ship

effective communication time management team work presentation skills

Writing professional report

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Computer programming

Good

Publik speeking

We have to learn how to combine all the subjects that we took through the programm.

communication

fields visits

practical application for some subjects and programs that needs imagination let the students to explain and discuss topics in English

Social media

Lab work.

communication skills

Field experience

Not have

Programming

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

More parking

Good

Hygiene

Online courses is a good choice.

I suggest for the senior project to have a condition that not any one take it only who will graduate in the same course with credits less than 9.

cleanliness

change previous exams

Supervise the students through their journey in Kuwait University and support them to be a successful humans in this country

My suggestion is to put a mini car like golf car to transport students between buildings.

Thanks

i suggest to include E-learning in Kuwait university

More labs and facilities

APPENDIX D:
Sample Presentation to Departments

Accreditation and Assessment

Andreas P. Christoforou
Office of Academic Assessment (OAA)
College of Engineering and Petroleum (CEP)
Kuwait University (KU)

Accreditation Structure-Leadership

ABET-EAC criteria

1. Students
2. Program Educational Objectives
3. Student Outcomes
4. Continuous Improvement
5. Curriculum
6. Faculty
7. Facilities
8. Institutional Support

+ Program Criteria (additional curriculum and faculty requirements)

Main activities-2016/17

- **Coordination** – three visits to individual departments, UPC, AC meetings, monitoring assessment activities, etc.
- **Addressing previous ABET visit issues** – programs addressed/addressing them.
- **Addressing areas for improvement** – Design, Common courses, Labs, English.
- **Alumni survey** – 1800 responded during registration drive, only 332 completed the survey.
- **Virtual assessment 'room'** – file sharing system

Alumni survey participation

Response Statistics: May 15, 2017

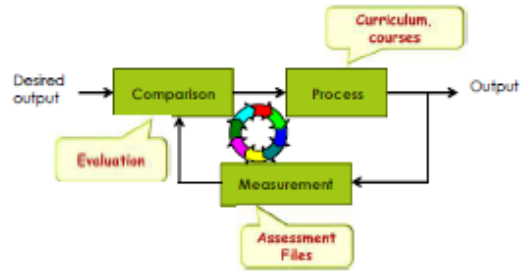
DEPARTMENTS	Total No. of Graduates - last 6 yrs	Survey Response	% Response
CHEMICAL ENGINEERING	583	39	6.9
CIVIL ENGINEERING	1380	106	8.7
COMPUTER ENGINEERING	442	35	7.9
ELECTRICAL ENGINEERING	631	41	6.5
IME ENGINEERING	380	30	7.9
MECHANICAL ENGINEERING	407	37	9.1
PETROLEUM ENGINEERING	503	22	4.4
TOTAL	4016	332	8.3

Course assessment participation

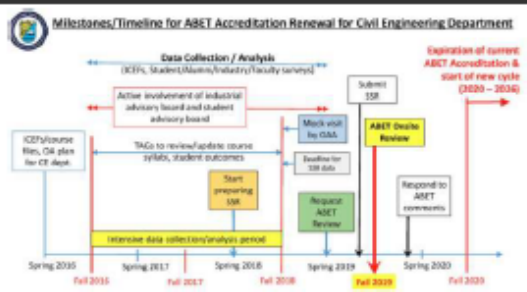
Response Statistics – Fall Semester 2016/17: May 15, 2017

DEPARTMENT	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	19	61	30	12	50.0	63.2
CIVIL	43	91	37	20	40.7	47.8
ELECTRICAL	22	66	30	13	36.5	40.8
IME	12	20	20	12	100.0	100.0
MECHANICAL	35	75	34	14	33.0	40.0
PETROLEUM	17	30	19	5	63.3	29.4
TOTAL	167	380	195	76	46.1	47.8

Closing the loop



ABET evaluation visit-timeline and preparation



Preparations for ABET

- Fall 2017 – Begin writing Self Study Reports (SSR)
- Spring 2017 – SSR drafts are ready for internal review
- Fall 2018 – Internal review and mock evaluation visit
- January 2019 – Request ABET evaluation visit
- June 2019 – Finalize SSR and send them to ABET
- July to October 2019 – Pre-visit activities and preparations
- November 2019 – ABET evaluation visit

Concluding remarks

- Accreditation is very important to all of us.
- ABET accreditation demonstrates our commitment to the quality of our engineering programs – both now and in the future.
- Keys: Commitment, support, implementation, follow-up.

For more information….

- Visit the OAA web site:
  - http://www.eng.kuniv.edu/oaa/
- Visit the ABET web site:
  - http://www.abet.org/accreditation/
- Or write/call us:
  - oaa@eng.ku.edu.kw, ext. 83331